

An Investigation into the Knowledge and Use of Electronic Library Resources in Jamaican
Community Colleges

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Abstract

This study used a quantitative survey to investigate the knowledge and use of online databases and the library's online public access catalog by final-year business associate degree students in five selected Jamaican community colleges during their final year. The study sought to determine students' knowledge of electronic library resources, their value for electronic and print resources, the purposes for which students use electronic library resources, the influences

on student use of electronic library resources, and the effects of training and instruction. Results from the study indicated that students are increasingly using internet search engines for research purposes rather than online databases. Results also indicated that electronic library resources such as the OPAC are being underutilized by community college students. It was also evident that proper instructional guidance is needed and welcomed by students.

The findings of the study are critical to the implementation of policies and procedures geared towards sensitizing school administrators, library professionals, and other stakeholders to the benefits of increasing students' knowledge and use of electronic library resources. Data will aid administrators in strategic planning and investments pertaining to these resources and provide recommendations to improve knowledge and use of these resources within libraries. The research illustrates the special needs of community college students in Jamaica, particularly as it relates to needed instructional programs, in an effort to impart knowledge and promote the use of electronic library resources in these colleges.

Introduction

Today's students are increasingly using search engines such as Google for research purposes and engaging in online social activities using tools such as Facebook and Twitter. Over ten years ago, Petrick (2004) predicted it would be only a short period of time before "electronic resources overtake print resources in current publishing and preferred mode of use" (174). Although print books are seen as primary information sources within Jamaican community colleges, "the products/services introduced in the library should match the requirements of intended users" (Marimuthu and Paraman 2011, 9). While large academic libraries have already

made this shift, community colleges in Jamaica also need to adapt as electronic library resources evolve and their knowledge, use, and availability increases.

Crawford’s (2005) dissertation, which looked at a development plan for implementation of four-year degree programs at community colleges within the university and community college system of Nevada, stated that “community colleges were originally founded to provide lower division academic programs, [however], community colleges have...adapted to meet the needs of society and the local communities in which they reside” (1). The dissertation made reference to Garmon’s (2000) study, which stated that “the question of whether or not community colleges can offer workforce baccalaureates that are competitive with the bachelor’s 2 degrees offered by four-year institutions should be practically answered, yes” (1). Similarly, in Jamaica as indicated in Table 1, all five community colleges offer four-year baccalaureate degree programs, creating some similarity in population identity between community colleges and university students. As a result, research done on university students is also included in the literature review.

Table 1: Overview of Colleges and their programs

College’s Name	Founding Date	# of Librarians/Staff Conducting Library Instruction/Orientation	Sample Programs Offered
Brown’s Town Community College	1975	1	<ul style="list-style-type: none"> • Bachelor of Science in Business Studies • Bachelor of Science in Nursing • Associate in Social Work • Continuing Education Programme. • Certificate in Business Administration

Excelsior Community College	1974	7	<ul style="list-style-type: none"> • Bachelor of Science in Business Studies • Bachelor Degree in Management Information Systems • Associate in Library Technical Studies • Certificate in electrical technology
Knox Community College	1974	2	<ul style="list-style-type: none"> • Bachelor of Science in Business Studies • Bachelor of Education • Bachelor of Science in Environmental Studies • Associate of Science in Environmental Studies
Montego Bay Community College	1975	3	<ul style="list-style-type: none"> • Bachelor of Science in Business Studies • Associate in Natural Sciences • Associate in Library Science • Associate in Auto Repairs and Engineering Technology • Pre-Engineering Certificate
Portmore Community College	1992	3	<ul style="list-style-type: none"> • Bachelor of Science in Business Studies • Bachelor of Science in Tourism, Hospitality and Entertainment Management • Enrolled Associate of Science in Hospitality and Tourism • Continuing Education Program¹

¹ Continuing Education is a program made up of a number of courses for students to complete in order to matriculate into professional Associate degree programs.

Higher Education and Community Colleges in Jamaica

In Jamaica, education is administered by the Ministry of Education (MOE) through one head office and six regional offices. Although there are some private institutions, the government provides most formal education, sometimes in partnership with churches and trusts (Planning Institute of Jamaica 2009). The Jamaican Education Act of 1980 stipulates that there are four levels in the formal education system. These include: early childhood, primary, secondary, and tertiary. In order to fund public education in Jamaica, the government collects revenue primarily through an education tax allotted through a formal annual budgetary system. In the case of private institutions, financing comes primarily from tuition and other student fees (PIOJ 2009).

In 2001, the Jamaican government issued an official white paper on education defining tertiary education as “post-secondary education including higher education,” including “teacher training colleges, community colleges, universities and the HEART Trust/NTA” (Henry-Wilson 2005, 1). The University Council of Jamaica (UCJ) has historically performed accreditation of programs and institutions, but recently there has been a shift in regulation and oversight and accreditation of tertiary programs and institutions to be the responsibility of the Jamaica Tertiary Education Commission (J-TEC), a statutory body under the Education Act. The Commission’s mandate includes “the establishment of internal quality standards for tertiary level institutions (TLIs) operating in Jamaica” (Ministry of Education Communication Unit 1 2014).

According to the Executive Director of the Jamaica Tertiary Education Commission, Maxine Henry-Wilson (2005), there are various types of tertiary institutions that offer different levels of certification. “A college is different from a university. A polytechnic institute is a kind of university, but it focuses on particular kinds of subjects, then you have community colleges,

which tend to have a wide range of offerings” (Patterson 2014, para. 5). In Jamaica, there are five community colleges and three multidisciplinary colleges, strategically located across the country to provide continuing education, community-based training, professional programs, and associate and bachelor’s degrees (Adamson 2012). Adamson explained the mission of community colleges in Jamaica is to “respond to today’s challenges, creating tomorrow’s opportunities by promoting intellectual discovery, entrepreneurial skills, social and ethical awareness, and economic opportunities for all through education that transforms lives, builds communities and improves society locally and internationally” (2012, para 29).

Jamaican libraries and their roles in the community colleges

This study focused on final-year business associate’s degree students in five community colleges: Brown’s Town Community College, Excelsior Community College, Knox Community College, Montego Bay Community College, and Portmore Community College. These colleges were chosen because they all offered common courses and provided suitable and representational respondents based on the research problem. All five community colleges are staffed with a College Librarian who has the responsibility of administering and managing the day-to-day activities of the library. These librarians are graduates from the University of the West Indies with tertiary levels of education; and have attained either a bachelor’s or master’s degree in librarianship. Additionally, each library has library assistants and library aides. Staffing for these libraries varies according to the institution’s needs and their student population.

Each library has autonomy in creating their mode of library instruction and library orientation, and this may differ from college to college. However, orientation is usually done at the beginning of the school year in September, and information literacy sessions are done

throughout the school year. Library orientation and information literacy sessions are delivered using various methodologies, determined by the institution's available facilities and students' needs. For instance, Portmore Community College administers information literacy and orientation sessions in an audio-visual room that is situated in the library, while Montego Bay Community College administers these sessions in a lecture theatre and classrooms depending on the session's requirement and size of the group.

Because of financial constraints and limited budgets, community colleges in Jamaica usually seek to acquire online databases as well as their OPACs through consortial initiatives. Two local bodies that support college libraries with this initiative are the College Library Information Network (COLINET), which provides a forum for networking among college librarians, and the Council of Community Colleges of Jamaica (CCCJ), a statutory agency under the Ministry of Education responsible for organizing, supervising, and coordinating the work of community colleges in Jamaica. For example, through COLINET and CCCJ these libraries subscribe to scholarly database packages sold by vendors such as EBSCO (academic databases) and Ebrary (academic e-books) at a discounted, consortial rate. These databases are customized to suit the academic needs and budget of the colleges. Both Montego Bay Community College and Portmore Community College subscribe to the Mandarin library automation system for their OPAC, while Excelsior uses the open source library software Koha, and Knox uses the open source library software Athenaeum Pro.

Identification of the Problem

This research focuses on final-year business associate degree students in five selected community colleges in Jamaica. Based on reports from interviews conducted with librarians of

the community colleges being studied, the researchers hypothesized that online resources, particularly online databases such as those subscribed to by community colleges in Jamaica, are underutilized. These databases includes those acquired through consortial initiatives by the colleges, e.g., EBSCOHost's academic database package (a group of scholarly databases put together based on the collective needs of the community colleges in Jamaica). This package covers various subject areas including business, science, vocational studies, and other academic areas. Similarly, online databases such as those sold by Emerald to the community college are also not being fully utilized by students. When asked what they thought were the possible causes of this low usage, the sentiments of several interviewed librarians can be summed up in one librarian's statement, "students tend to look for information in resources they are most familiar with, such as the texts they see their lecturers using." Another interviewee stated that "EBSCOhost as a research tool is more frequently used in his institution when compared to its counterpart Emerald." He further stated that "students hardly attend training sessions [throughout the year], even when they are advertised."

Thus, it is imperative that libraries make a concerted effort to understand the information-seeking behavior, needs, and expectations of their clients. Business students are a core group within many educational institutions, and should be considered relevant to any investigation into libraries' services (Song 2004). All five community colleges in Jamaica offer associate and bachelor degrees that are developed by the CCCJ. Common programs offered by these colleges are the Associate of Science and Bachelor of Science in Business Studies. All five community colleges under the direction and guidance of the CCCJ must guarantee that the information needs of the students in each college are provided for in a similar way, ensuring that there is equity in providing access and usage of their library's information resources for their students. It is to this

end that the library in each of the five community colleges have sought to provide the necessary resources (online and otherwise) to make sure the needs of these students are met. Instructional programs such as library orientation, which aim to make students aware of the usefulness and procedures for usage of online resources, aid in adequately equipping students with the necessary knowledge of and skills for using these resources. Condic's (2004) study suggested that "students who had previous library instruction are more likely to use electronic journals than those without library instruction" (1). Today's library users are used to innovative and convenient technology-based services in their day-to-day activities, and would therefore expect similar services from their institution's libraries (Moyo 2004). Students use these online resources to satisfy various research queries, hence the need for appropriate knowledge and training in their use.

Research Questions

Six research questions were used to explore final-year business students' knowledge and use of electronic library resources in five Jamaican community colleges. These questions were based on the research objectives, in accordance with the theoretical framework:

Objective 1: To determine students' knowledge of the electronic resources in their libraries

Research Question 1: Are students aware of the subject-related content that exists in online databases?

Research Question 2: Are students aware of the efficient value of the library's OPAC in locating information?

Objective 2: To identify the purposes for which students use electronic resources in their libraries.

Research Question 3: For what purposes do students use the electronic resources in their libraries?

Research Question 4: What influences students' use of these resources as a means of locating information?

Objective 3: To assess students' valuation of electronic resources as compared to print resources in their libraries.

Research Question 5: Do students prefer to use print resources instead of electronic resources in these libraries?

Research Question 6: Does students' use of electronic library resources increase as a result of training/instructional programs?

Literature Review

Electronic library resources provide an integral tool for research in many educational institutions. According to Ekwelem, Okafor, and Ukwoma (2009), electronic library resources may be defined as “information sources that are available and can be accessed electronically through such computer-networked facilities as online library catalogs, the Internet ... online academic databases [and] commercial databases” (89). For the purpose of this paper, the broad term “electronic library resources” is used in reference to online databases such as those acquired through EBSCOHost and Emerald as well as the OPAC.

This study explores the use of the library OPAC separately from other electronic library resources. There are varying definitions and terms used to describe an institution's OPAC. Ariyapala and Edzan (2002) describe the “online public access catalog (OPAC) as a computerized catalog containing records of the items in a library or any institutional

organizations, which is used for the storage and retrieval of information” (57). In Petrick’s (2004) study, of the 29 community colleges surveyed, none seemed particularly interested in making available through their “catalog” more than a few Internet resources, other than e-books. However, open access may be influencing a slow change in this trend. Making bibliographic information on articles available on the institution’s OPAC may improve knowledge and use of the libraries’ online resources in these community colleges.

Notable West Indian works such as Paulette Bowen’s (2007) study “The Use of Print Versus Electronic Journals at the University of the West Indies” and Ramlogan and Tedd’s (2005) study on undergraduates’ use and non-use of electronic information sources at the University of the West Indies have highlighted that students’ knowledge and use of electronic library resources is dependent upon their perception of the resources as information tools and their level of training and administrators’ (librarians, lecturers, etc.) influence. There is global interest in undergraduate students’ information-seeking behavior as is evident in Barbara Valentine’s (1993) and Hur-Li Lee’s (2008) research. Their findings of usage among undergraduates are similar to those of community college students: students tend to choose the easiest and least time-consuming means of finding information. These studies support the establishment of appropriate policies and guidelines to assist administrators in decision-making related to increasing knowledge and use of electronic library resources.

Students’ Awareness of Subject-Related Content in Online Databases

Much research has been done on students’ awareness and use of their institutions’ electronic library resources. Community colleges in Jamaica have made a concerted effort to acquire some of the world’s most notable scholarly online databases. As alluded to earlier, these

acquisitions are made based on the academic offerings of the institution. Databases are selected and customized with specific titles covering specific subject areas that are in direct relation to students' academic needs. Table 2 provides a summary of the populations, geographic locations, and findings of the studies discussed in this section.

Table 2: Summary Profile for Research Question 1: Are students aware of the subject-related contents that exist in online databases?

Study	Student Profile	Geographic Location	Findings
Ramlogan and Tedd (2005)	Undergraduates at the University of the West Indies	Jamaica, West Indies	Perceived lack of useful information was chief among reasons for non-repeat usage.
Head and Eisenberg (2011)	Undergraduates on campuses distributed across the US. Four-year institutions and community colleges	United States of America	Few respondents reported having used the full range of library resources and/or services. More students in four-year institutions said they had used online resources than students in community colleges.
Swain (2010)	Business schools of Orissa (India)	India	There were some databases that students were aware of in these schools; however, the overall awareness of business-related databases was rather poor.
Chu and Law (2005)	Postgraduate research students	Hong Kong	Students' knowledge of databases and students' familiarity with online databases were usually based on their acquired information with search expertise as they are usually unfamiliar with these databases.

Table 2: Summary for Research Question 1

In Ramlogan and Tedd's (2005) study on the use and non-use of electronic information sources by undergraduates at the University of the West Indies, a user survey was conducted to

find out why students would not use specified databases. Data collected from open responses and interviews indicated that “[difficulties related to] perceived lack of useful information” were chief among reasons for non-repeat usage (37). A key factor of students’ knowledge and use of electronic library resources is their overall perception of the usefulness of the information these resources contain.

Similar studies done in community colleges have indicated students’ low usage of online resources. In Head and Eisenberg’s study (2011), findings from interviews indicated that “despite the pressing need to complete assignments at crunch time, few respondents reported having used the full range of library resources and/or services during the previous hour” (3). Furthermore “a breakdown by institutional type showed more students in four-year institutions in [their] sample said they had used online resources than those students in community colleges” (14). In a study done by Chu and Law (2005), a number of surveys, direct observations, and interviews were conducted to find out the views of students and their knowledge of different databases. Findings suggested that “many students were... unfamiliar with many of the databases important to them [and] much work has to be done to inform and instruct students about these ‘treasures’” (621).

Other studies suggest that university students have similar issues. For example, Swain’s (2010) survey of students enrolled in some major business schools of Orissa, India revealed there were some databases that students were aware of in these schools. These databases included two of the most popular business databases, EBSCO and Emerald Management Xtra. These databases are management-specific and could provide vital information for their areas of study. However, Swain also found that the overall awareness of business-related databases was rather poor.

Students' Awareness of the Value of the Library's OPAC in Locating Information

A library's OPAC is a powerful information tool, used to identify, locate, and access bibliographic information from different access points. Over the years the OPAC has evolved and found its way into most, if not all modern "technologically fueled" libraries. According to Wilson, "the 'library catalog,' once thought of as solely a discovery tool for library materials has evolved into a delivery mechanism that offers much more than MARC records for the materials collection and the promise of seamless access to electronic collections and services" (2004, 63).

Table 3 provides a summary of the populations, geographic locations, and findings of the studies discussed in this section.

Table 3: Summary Profile for Research Question 2: Are students aware of the efficient value of the library's OPAC in locating information?

Study	Student Profile	Geographic Location	Findings
Kelley and Orr (2003)	The University of Maryland University College	United States of America	Following the library's database, the library's catalog was seen as the second most useful resource.
Ebiwolate (2010)	Undergraduate students in Niger Delta University	Nigeria	Although students were aware of the library's catalog, only a small percentage used it. Students cited lack of user skills as their main deterrent in using the online catalog to locate information
Adedibu (2008)	Undergraduate Students of the University of Ilorin	Nigeria	Majority of students go directly to the shelves to locate and retrieve books without using the library's catalogs. Only a few students actually use the OPAC, noting they would instead go straight to the shelves to browse and pick out relevant

Table 3: Summary for Research Question 2

While there were few studies that investigated community college students specifically, several studies on university students provided some information relevant to the research question. The researcher is aware of the potential difference in populations between community college students and university students, as outlined in the introduction of the research. However, based on findings, the researcher perceived some similarities in behavior and attitude towards electronic library resources and the use of the OPAC.

A number of studies have been done concerning the value of the library's OPAC. Ebiwolate (2010) administered questionnaires to undergraduate students in the Niger Delta on the use of the OPAC. The study reported that although students were aware of the library's OPAC, only a small percentage used it. In the study, students cited lack of user skills as their main deterrent in using the online catalog to locate information (3). Results from this research confirmed the notion that library instructional programs are vital to students' awareness and use of their library's OPAC.

Findings by Ebiwolate (2010) are similar to those found in Adedibu's (2008) study, where questionnaires were administered to students at the University of Ilorin in Nigeria in an effort to solicit information on their OPAC usage. Adedibu (2008) found that the "majority of students go directly to the shelves to locate and retrieve books without using the library's catalogs" (59). He attributed this behavior to the lack of exposure to libraries in the early schooling experiences of these students and their lack of understanding the benefits of the catalog. Reports from the study indicated that most students usually did a "subject search."

Students reported that subject searches usually gave them a wider variety of books to choose from than title or author searches, which require more specific search terms. It was also reported in the study that only a few students actually used the OPAC, even though students also indicated that most of them knew how to do so.

Purposes for which Students use Electronic Library Resources

Students' use of electronic library resources varies and may include research, homework, and assignments, as indicated by Gregory's study (2008, 269).

Table 4 provides a summary of the populations, geographic locations, and findings of the studies discussed in this section.

Table 4: Summary Profile for Research Question 3: For what purposes do students use the electronic resources in their libraries?

Study	Student Profile	Geographic Location	Findings
Ekwelem et al. (2009)	The University of Nigeria	Nigeria	Most students used electronic information sources to locate general information and to do class assignments.
Bassi and Camble (2011)	University Libraries of Adamawa State, Nigeria	Nigeria	Majority of students used electronic resources for research, followed by assignments.
Ali (2005)	The users of the Indian Institute of Technology (IIT) Library in Delhi, India	India	Users gave high priority to study and research as a purpose of electronic library services. Earlier research in Delhi revealed users faced numerous problems while browsing electronic information, including

lack of knowledge about the resources, lack of trained staff, and inadequate terminals.

Table 4: Summary for Research Question 3

Ekwelem et al. (2009) used questionnaires to assess the patterns of use of electronic information sources by 600 students at the University of Nigeria, and found that most students used electronic information sources to locate general information and to do class assignments (94). These findings were similar to Bassi and Camble's (2011) survey results, which found that of the five purposes given for using electronic information resources, the majority of students used electronic library resources for research, followed by assignments.

Similar findings were reported in a study done by Ali (2005), where both questionnaire and observational methods were used for data collection to examine the use and perceived importance of electronic information services among library users. The study indicated that users gave high priority to study and research as a purpose of electronic library services. It was also reported that users viewed the use of these resources in helping them stay current with their discipline as important, while some users stated that searching information for career development was most useful to them (Ali 2005). Even though users in the study perceived the general purpose of electronic services to be useful, it was also reported that earlier research done in Delhi revealed that a number of users were facing numerous problems while browsing electronic library resources. These included a lack of knowledge about the resources, lack of trained staff, and inadequate terminals.

Influences on Students' Use of Electronic Library Resources

As indicated in the literature, technology has influenced how students do research as well as their preferred mode of research. However, there are a number of other influential factors that contribute to students' use of electronic library resources.

Table 5 provides a summary of the populations, geographic locations, and findings of the studies discussed in this section.

Table 5: Summary for Research Question 4

Table 5: Summary Profile for Research Question 4: What influences students use of these resources as a means of locating information?

Study	Student Profile	Geographic Location	Findings
Ramlogan and Tedd (2005)	Undergraduates at the University of the West Indies	Jamaica, West Indies	Lecturers' recommendations were the most likely reasons for students to use a particular electronic library system. Data collected from non-users revealed that as a result of lack of direct reference to these resources by their lecturers, students were reluctant in their use of the library's electronic resources. One of the major influences on use was recommendations from friends and other students.
Tenopir (1999)	academic libraries	United States of America	The choice of database is more likely made by a complex mix of factors, centering on convenience and recommendations by librarians. Librarians had a great influence on students' use of electronic databases

According to Waldman (2003), “[In order] to encourage students’ use of the library, and in particular of its electronic resources, [it is important] to understand what factors encourage students to seek out information in the library setting” (para. 1). Ramlogan and Tedd’s (2005) study of undergraduates’ use and non-use of electronic information sources at the University of the West Indies found the most likely motivation for students to use a specific electronic

information source was a teacher's recommendation. The study also indicated that data collected from non-users revealed that as a result of lack of direct reference to these resources by their lecturers, students were reluctant to use the library's electronic resources. The study further revealed that one of the major influences on the use of these resources was "recommendations from friends and other students" (38). It would be fair to state that in Jamaican community colleges, an increase in lecturers' directives for students to cite online resources for the completion of their assignment would increase students' motivation to use online databases.

Tenopir (1999) conducted a study in which a database aggregator was used to provide usage data in an effort to find out factors that influence online database use. The study indicated that "the choice of database is more likely made by a complex mix of factors, centering [on] such things as convenience, recommendations by librarians ..." (1). One of the major findings of this study was that librarians had a great influence on students' use of online databases. Their influence included the mentioning of specific products in orientation sessions, leading students to specific databases in order to complete specific assignments, and even making suggestions on how to access these databases (6). The study also concluded that in academic institutions, users of online databases normally access these resources more when they have assignments to complete.

Song's (2004) survey of business students focused on their use, perceptions, and expectations of electronic library resources. The survey pointed out these students tend to use resources with which they are most familiar, and recommended that focus be placed on motivating these students and then educating them on the use of these resources provided by their library. Implicitly, focusing on students' knowledge and use of electronic library resources will aid in providing better library services and support for users' information needs.

Students' Valuation of Print Resources Compared to Electronic Library Resources

A 2002 study published by OCLC, which sought out the information habits of college students, found that “although 99 percent of respondents use email and 78 percent prefer to access the web remotely, most college students do not exhibit a strong preference for electronic copies over paper copies” (OCLC 6).

Table 6 provides a summary of the populations, geographic locations, and findings of the studies discussed in this section.

Table 6: Summary for Research Question 5

Table 6: Summary Profile for Research Question 5: Do students prefer to use print resources instead of electronic resources in these libraries?

Study	Student's Profile	Geographic Location	Findings
Mizrachi (2010)	study on undergraduates'	California, United States of America	The findings reflected students' overall preference for print over online formats. Students claimed printed materials allowed for portability and more interaction with texts, for example, highlighting key points on the print copy. Some students had mixed sentiments, preferring to read in print but opting to read online because they did not want to print the work if that could be avoided
Lombardo and Miree (2003)	Undergraduate business students at the Oakland University.	United States of America	Generally, students preferred to use research tools that they were more familiar with. This included the library's print resources and the web and not the “online databases” subscribed to by their institutions. This familiarity was really based on how convenient it was for them to access information rather than the quality of information. Again students' lack of training in the use of “online databases”

suggested they saw no difference between the information provided by the web and “online databases.”

Lee (2008)	Undergraduate students	United States of America	Instant availability and convenience made online resources that were directly accessible more appealing than print sources.
Valentine (1993)	Undergraduate students	United states of America	Undergraduates tend to look for the easiest, least painful way to complete a research project in a timely and satisfactory fashion.
Bowen (2007)	University of the West Indies Library, Mona	Jamaica, West Indies	Journal format preference was almost equal for print and electronic journals; faculty and students use of print and electronic journals showed marginal differences.

Mizrachi’s (2010) study on undergraduates’ preferred format for reading academic material reflects students’ overall preference for print over online formats. The study used three ethnographic methods: tours of students’ work areas, semi-structured interviews, and essays. The study revealed reasons for students’ preferences. For example, students claimed that printed materials allowed for portability and more interaction with texts. This meant they could highlight key points on the print copy. However, some students who preferred to read their work in print chose to read online because it was more accessible.

In Lombardo and Miree’s (2003) study, questionnaires were administered to 102 undergraduate business students. The study indicated that although “students were most familiar with Web resources... they were more familiar with the library’s print resources than its online databases” (12). Students tended to prefer research tools they were most familiar with, based on how convenient it was for them to access information rather than the quality of information. Findings from the study also suggested that because students lack training in using online databases and print resources to find information, they were more inclined to use the web to locate information for research purposes (Lombardo and Miree 2003).

Lee (2008) interviewed undergraduate students about their information seeking behavior. She found that “instant availability and convenience made online resources that were directly accessible more appealing than print sources ...” (215). These findings concur with Valentine’s (1993) qualitative study that used focus groups and individual interviews to explore undergraduate students’ research skills. The study revealed that “undergraduates tend to look for the easiest, least painful way to complete a research project in a timely and satisfactory fashion” (302). Bowen’s (2007) survey on the use of print journals at the University of the West Indies Library, Mona campus highlighted the importance of balancing various formats for educational resources. Her findings suggested that “journal format preference is almost equal for print and electronic journals and that faculty and students use of print and electronic journals showed marginal differences” (1). It is therefore imperative that students are made aware of the benefits of using both print and electronic formats of information, and equally important that libraries make a concerted effort to acquire and maintain both formats.

Training/Instructional Programs Effects on Students’ Preference and Use of Electronic Library Resources

According to Duke and Asher (2011) “when searching for scholarly resources for an academic assignment, successful students must not only familiarize themselves with a discipline... but also must have an adequate understanding of how information is organized, how to evaluate sources, and how to use the “tools” of “scholarship,” such as catalogs and databases (71). To gain this understanding, training or instructional programs provide a plethora of channels from which community college students may acquire these skills and knowledge.

Table 7 provides a summary of the populations, geographic locations, and findings of the studies discussed in this section.

Table 7: Summary for Research Question 6

Table 7: Summary Profile for Research Question 6: Does students' use of electronic library resources increase as a result of training/instructional programs?

Study	Student Profile	Geographic Location	Findings
Ramlogan and Tedd (2005)	Undergraduates at the St. Augustine Campus of the University of the West Indies	Trinidad and Tobago, West Indies	Students were aware of the value of search skills as an important asset in locating their desired information and indicated that lack of assistance by library staff was a barrier to locating information.
Lombardo and Miree (2003)	Undergraduate Business students' at the Oakland University.	United States of America	Before library instruction, students were more likely to use the web to find all of the information they needed. However, after library instruction, students were more "open" to the idea of using other information resources for completing research.
Baro, Endouware, and Ubogu (2011)	Medical Students in the College of Health Sciences in Niger Delta University	Nigeria	Lack of adequate library instructional sessions and time constraints led to students relying on print materials, the internet, and their colleagues for information, rather than the electronic databases subscribed to by their institution.
Booth (2011)	California Community College students	United States of America	Students who had attended library instruction sessions were much more likely to be frequent users of the library's facilities and services than those who did not attend library instructions sessions.

Research has pointed to the effect that training and instructional aids can have on students' preference and use of electronic library resources. Ramlogan and Tedd (2005) pointed

out that students were aware of the value of search skills as an important asset in locating their desired information. These students also indicated that lack of assistance by library staff was also a barrier to locating information. In Lombardo and Miree's (2003) study, a number of questionnaires were administered to students in which the researcher set out to determine the impact of library instruction on undergraduate business students' perceptions of electronic library resources and also "if library instructions affect students' use of these resources in completing a business-related research project" (7). Findings from Lombardo and Miree's (2003) study indicated that before library instruction, students were more likely to use the web to find all of the information they needed. However, after students were formally trained on how to use the library's databases, there were some marked differences, including the fact that "students believed they could not find all of the information they needed to complete their research using only Web resources... although the Web was still viewed as easy to use" (9-10). The results of the study suggested that after instruction, students encountered less frustration in using library databases. Also, their perception that these resources are convenient and reliable sources of information increased.

Baro, Endouware, and Ubogu (2011) used questionnaires and interviews to collect data from college students and found that "students rely mostly on textbooks, medical journals, the Internet [and] colleagues ... for information and that they rarely use electronic resources such as ... EBSCOHost" (107). The study attributed lack of time and poor information literacy skills as causes. Booth's (2011) five-campus pilot research project supports Baro et al.'s findings. Using questionnaires, Booth conducted surveys about California community college students' library and technology engagement. The surveys indicated that students who had attended library instruction sessions were much more likely to be frequent users of the library's facilities and

services than those who did not attend library instruction sessions. The literature has indicated overwhelmingly that training and instructional sessions improve or enhance students' perception and use of electronic library resources.

Renwick's (2005) study indicated that "the ability to use e-resources efficiently depends on basic computer skills, knowledge of what is available, and how to use it..." (22). Renwick's view is supported by Gill's 2005 case study, which indicated that sixth-form students (the highest grade level in the high school system) who were familiar with the Internet and computer systems were able to navigate through the Caribbean Digital Library, even though they were not familiar with digital library systems.

However, Gill's (2005) study also indicated that these students were not keen on conducting searches using subject categories or hypertext links. Students preferred using search boxes because it reminded them more of using the Internet. However, a single search box isn't enough for searching scholarly databases. It is therefore critical for the effective use of e-resources that appropriate search skills are taught to users, such as the use of Boolean search syntax and appropriate search options such as subject, author, and date entries.

The current study attempts to understand if community college students in Jamaica face similar barriers in their understanding and use of electronic library resources as those discussed in the literature, and if training would increase the rate at which they used the resources available to them.

Methodology

This study was designed to explore students' knowledge and use of electronic library resources. The variables and method of measurement were chosen based on the literature review

and from a thorough analysis of the problem identified in the study. The researcher conducted a quantitative survey using a questionnaire, and data was analyzed using Microsoft Excel.

The sample size chosen for this study was 200 students from a target population of 507 final-year business associate’s degree students from five selected community colleges. The population reflected the number of final-year students enrolled in the associate degree in business studies program for the school year 2011-2012. Table 8 provides a summary of the population and sample size for each college included in the study.

Table 8: Overall Business Student Population and Sample Size from each College

College	Population	Sample size	% Sampled
Brown’s Town Community College	37	37	100
Excelsior Community College	147	47	32
Knox Community College	63	32	51
Montego Bay Community College	136	31	23
Portmore Community College	124	53	43
Total	507	200	39

Table 8: Population and Sample Size from each College

The researcher took a convenience non-probability sample from each of the five community colleges, selecting respondents based on their class schedule and class size. Students had to either be a part-time or full-time final-year business associate degree student as opposed

to a modular student (attempting a single certified module of a program) of the community college. As mentioned earlier in the introduction, final-year business associate's degree students were thought to be more likely to have been exposed to the library's resources.

While it is unknown whether convenience samples adequately represent the population of interest (Fairfax County Department of Systems Management for Human Services, 2003), the researcher made an effort to select a large enough sample from the population while bearing in mind that a "sample's accuracy is more important than its size" (Oppenheim 1992, 43). According to Given (2008) "searching for specific cases or individuals who meet certain criterion... would be considered criterion sampling" (697); thus, one could say that the researcher initiated a criterion-based convenience sampling approach.

Several limitations contributed to the researcher choosing a convenience sample, most notably the fact that three of the colleges were several miles away and would require considerable time and resources to reach and administer to effectively. This was also challenging since the researcher opted to use a printed survey format. The researcher also took into consideration the barriers to effective communication, as gathering information from the colleges was sometimes hindered due to students' varying class schedules.

Data Collection Instrument

A twenty-two question survey investigated the knowledge and use of electronic library resources. The questionnaire was divided into four sections, and is provided in Appendix A. Section A of the questionnaire consisted of three demographic questions, which aided the researcher in determining how well the respondents represented the population of interest.

Respondents were 68 percent female and 32 percent male. More than half of the respondents were 18-21 years old.

Section B consisted of eight questions that aimed to determine students' knowledge of the electronic library resources in their libraries and covered Research Question 1, "Are students aware of the subject-related contents that exist in online databases?" and Research Question 2, "Are students aware of the efficient value of the library's OPAC in locating information?"

Section C consisted of five questions attempting to identify the purpose for which students use electronic resources in their libraries and covered Research Question 3, "For what purposes do students use the electronic resources in their libraries?" and Research Question 4, "What influences students use of these resources as a means of locating information?"

Section D consisted of six questions assessing students' valuation of electronic resources as compared to print resources in their libraries and covered Research Question 5, "Do students prefer to use print resources instead of electronic resources in these libraries?" and Research Question 6, "Does students' use of electronic library resources increase as a result of training/instructional programs?"

Results

Students were asked what electronic library resources they use to complete their assignments. This question had a 100 percent response rate. Students were allowed to choose more than one option from the choices. Seventy-four percent (184) of the respondents indicated they use the Internet, which is significantly more than other electronic library resources. Thirteen percent of respondents, who identified the "other" category, identified books as their choice when completing assignments. Only nine percent of the respondents indicated they use online

databases as an information source when completing their assignments, followed by three percent who use CDs, and one percent who use the OPAC.

Students were asked how they found out about the library's electronic resources. Students were allowed to choose more than one option from the responses. This question had a 100 percent response rate. The data indicated that students' awareness of the electronic library resources came through a variety of methods. Twenty-nine percent of the respondents indicated they were introduced to the library's electronic resources specifically by other students, while 26 percent of the respondents were introduced to the library's electronic resources generally by "word of mouth." Twenty-four percent indicated they were introduced to the library's electronic resources by library staff, (e.g., through a reference query) and 19 percent by more formal instruction (e.g., an orientation). Only one percent indicated that their awareness of library resources was via the library's web page, and one percent from other means.

Students were asked what they thought about the value of electronic library resources. This question had a 94 percent response rate. Forty-six percent viewed the library's resources as a secondary resource, 44 percent as a vital resource; and 10 percent as an unnecessary expense.

Participants were also asked about their main purpose for using the library's electronic resources. This question had a 93 percent response rate. Sixty-two percent said they use the resources as a means of finding additional information for assignments, twenty-two percent of the respondents identified using the library's electronic resources as a main source of information, and seven percent said they used the resources for general knowledge.

Students were asked what or who influenced their use of electronic library resources. This question had a 94 percent response rate. Fifty-seven percent of the respondents said they were mostly influenced by assignments to be completed. Twenty-nine percent of the respondents

indicated that their main purpose for using the library's electronic resources was mostly influenced by their lecturers' reference to the resources, nine percent indicated being influenced by their knowledge of the resources, and three percent indicated orientation to the resources as their primary influence.

Respondents' were asked what their preferred information resource was after completing an assignment. This question had a 100 percent response rate. Sixty-six percent of the respondents said the Internet was their preferred resource, while twenty-five percent of the respondents said books, and five percent identified the "other" category. Four percent of the respondents said "online databases" was their preferred resource.

Respondents indicated their primary reason for choosing an information resource. This question had a 97 percent response rate. Thirty-nine percent of the respondents identified availability of the resource as the primary reason for choosing an information resource, thirty-two percent of the respondents identified efficiency in retrieving the resource, twenty percent of the respondents said reliability of the resource, and nine percent of the respondents said confidence in using the resource was their primary reason.

Respondents noted whether or not training on the library's electronic resources increased their preference and use of online databases. This question had a 40 percent response rate. Six percent of these respondents strongly agreed, and forty-four percent agreed that training on the library's electronic resources increased their preference and use of online databases, while thirty-six percent were undecided. Ten percent disagreed and four percent strongly disagreed that training increased their preference and use.

Respondents rated whether or not training on the library's electronic resources increased their preference and use of the OPAC. The question had a 35 percent response rate. The data

indicated that eleven percent of respondents strongly agreed that training has increased their preference and use, 38 percent of respondents agreed, 36 percent were undecided, 12 percent disagreed, and 3 percent strongly disagreed.

Discussion

This study offers a new perspective to the literature by exploring the knowledge and use of electronic library resources in the context of Jamaican community colleges. As a result, there were several limitations to this study. First, this study focused on final-year business associate's degree students, limiting the interpretation of implications to other subject areas and grade levels. Furthermore, only five of the colleges under the umbrella of the Council of Community Colleges of Jamaica were selected for the study, and a convenience sample was used. This limits the ability to make statistical inferences, but still offers rich exploratory data.

Another limitation was that the two questions about the impact of training on students' database and OPAC preferences had low response rates. A high percentage of respondents said that an orientation was not how they came to know about the library's electronic resources. Therefore, students may not have been able to adequately ascertain whether or not training had impacted their overall preference for electronic library resources. The low level of response rate to these two questions makes it difficult to adequately evaluate the impact that training has had on Jamaican college students' use of electronic library resources.

As indicated when identifying the problem, today's students are more familiar with using search engines via the Internet rather than scholarly databases prescribed by their institution for research purposes. Findings from the study confirm this assertion. Other studies of community college students such as those done by Head and Eisenberg (2011) as well as Swain (2010),

suggest that for community college students there was a lack or low usage of “online resources.” As indicated by Ramlogan and Tedd (2005), libraries are increasingly making available a wide variety of electronic information services to their students. However, their research also indicated that although most students visit the library regularly, these visits are usually to use the Internet or books rather than to use online databases, the OPAC, or any other electronic resource. Students were comfortable using the recommended texts and lecture notes provided to complete their assignments.

This study’s findings also support Adedibu’s (2008) findings that “the card catalog and the OPAC, the most essential library tools in accessing the library collection, are not always consulted because of inadequate knowledge of how to use them” (60). The results of Adedibu’s study further indicated that “most respondents claimed to know how to use the card catalogs” and the OPAC but only a few use them [and] a limited number of respondents have sought the assistance of a library staff in the use of catalogs” (62).

Because only 19 percent of respondents identified orientation as a means of knowing about the electronic library resources, it is evident that orientation is not the most popular or only means of introducing students to library resources such as the OPAC. It is also possible that many students’ miss orientation sessions and were therefore introduced to the resources by other students or by library staff directing them to the OPAC as an information resource.

Respondents to the survey indicated that electronic library resources are mostly used by this study’s population for additional information for assignments, not as a main source of information. They view electronic library resources as a secondary service provided by their library. The literature review suggests that students’ purposes for using their institutions’ electronic library resources varied, but most often included an assignment to be completed.

Tenopir (1999) and Ramlogan and Tedd (2005) also identified lecturers' reference as a main influence for using online resources. Prior research supports the findings from this study, which confirmed the importance of assignments to be completed and lecturers' recommendations as strong motivations for students to use electronic library resources.

Responses confirmed that compared to books and the Internet, online databases are considered the least preferred information resource, the Internet being the most popular. This finding is not surprising as students identified their primary reason for choosing an information resource as being dependent on its availability and its efficiency – a finding supported by prior studies (Valentine 1993). This finding is coupled with the fact that a majority of respondents in this study indicated they were not given adequate training on the library's electronic resources.

Findings from this study suggest that the majority of respondents who received training on the library's electronic resources believed that training increased their preference for and use of the resources. The study also reflected the view that students agreed that training on the library's electronic resources will increase their preference and use of the resources. These findings are supported by the literature (Lombardo and Miree 2003; Ramlogan and Tedd 2005). It is evident from the data that most students agree that training has had a significant and positive impact on their preference and use of online databases.

The literature points to the fact that library databases may require specific search skills in order to use them effectively (Lombardo and Miree 2003). The lack of these necessary skills may have a negative effect on students' use of online databases and the OPAC. Thus, students may "find it more difficult to search a library database that requires users to adhere to specific searching rules..." (16). This study also found that when students were asked whether or not training had increased their preference and use of the OPAC, in comparison to those who agreed,

an almost equal number of undecided responses were given. This suggests more structured orientation sessions are needed to increase students' knowledge and information evaluation skills, as well as to promote the effective use of electronic library resources. Most students in this study agreed that training had a significant and positive impact on their preference and use of online databases.

As indicated earlier in the study, the findings of the study are critical to the implementation of policies and procedures geared towards informing school administrators, library professionals, and other stakeholders of the benefits of increasing students' knowledge and use of electronic library resources. A result of raising their awareness should be the development of policies that include a holistic approach to the value and development of a modern library structure in all educational institutions in Jamaica and the Caribbean at large. There must be bold initiatives taken by the government to implement a general framework from which all library professionals can generate specific aims and objectives geared toward facilitating increased knowledge and use of electronic library resources. Such a framework may include incorporating community colleges' and other tertiary institutions' contributions in developing a knowledge society within the country's national development plan.

Recommendations

Community colleges in Jamaica have made remarkable strides in the education sector as well as in community development. They are major players in the education arena, as they provide human resources that will meet the need of the growing business sector of Jamaica. This study proposes that these colleges administer periodic structured surveys to evaluate the knowledge and use of electronic library resources in their institution's information technology

procedures. This would create an avenue for constant evaluation and improvement of the library's electronic resources for the benefit of users. Critical to this process is the responsibility of librarians, educators, and administrators to ensure proper planning and collaboration at all levels of the learning process and timely implementation of needed financial and human resources to establish ongoing and effective training for students.

By strategically incorporating the library as a unit of the college into the institution's strategic plan, the colleges can gradually develop a working plan to implement and encourage structured collaborative efforts with government and non-governmental agencies as well as private and public funding agencies. These initiatives will enable continued support and development for the library, not only in acquiring electronic library resources, but also in supporting training and development for librarians, who are the main administrators in the development of students' knowledge and use of electronic library resources.

As indicated by Rogers and Wooldridge (2011), where there are limited financial resources, as is the case with community colleges in Jamaica, libraries have sought to acquire electronic library resources through consortia initiatives. As such, the value and cost of electronic library resources should be taken into account during the initial development of curriculum development. A curriculum provides an outline view of what should be covered throughout a course, as well as the tools needed to accomplish prescribed tasks in a unit. It is therefore important that academic stakeholders incorporate online resources, such as scholarly databases, as prescribed learning aids and that internal stakeholders, such as librarians and lecturers, not only encourage their use, but also mandate their use as credible and reliable sources of information in the teaching and learning process.

The high percentage of undecided responses for the “impact that training has on students’ knowledge and use of online databases as well as the OPAC” question merits further study in order to explore the findings as well as to assess any real significant implications training has on Caribbean students’ search patterns. This will also provide avenues for recognizing the skillsets that librarians and other administrators need in order to improve delivery techniques in providing training.

Conclusion

Electronic library resources provide an integral tool for research in community colleges across Jamaica. It is for this reason that the study investigated the knowledge and use of electronic library resources by final-year business associate’s degree students in five selected Jamaican community colleges.

Results from the study indicated that students are increasingly using the Internet for research purposes rather than any particular electronic database. Results also indicate that electronic library resources such as the OPAC are being underutilized by community college students in Jamaica. It is also evident that proper instructional guidance is needed and also welcomed by students.

This research suggests that students’ knowledge and use of electronic library resources as tools of information are determined by a number of variables, which includes their awareness of the resources, purpose for usage of the resources, and the value they place on these resources. The authors assert that instructional guidance through orientation and lecturers’ guidance are key strategies to increase usage of these resources.

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