

## Relevance Of E-Library Facility to the Delivery of Education at the High School: An Example From Ghana

Owusu Nyarko-Boateng  
CEO

Innerjoy Digital Systems  
Sunyani, Ghana

innerjoyservices@gmail.com

Alfred Kuranchie  
Senior Lecturer

Catholic University College  
Sunyani, Ghana

kuranchiealf@yahoo.com

Justice Anning  
Lecturer

Sunyani Technical Uni  
Sunyani, Ghana

aning421@gmail.com

**Abstract**—This study assessed the performance of the e-library projects that MTN built at Suma Ahenkro SHS and the impact of the e-library facility on the teaching and learning processes of the school. The worth of the conventional library (old library) is gradually losing its usefulness in the modern day educational structure as compared to the previous years. The study deployed probability sampling technique to select 75 sampled individuals from the target population. The target population of the study was the users of the e-library facility in the school. Questionnaire was the method used to collection data for the study. The respondent provided answers to 20 compulsory questions. The data analysis plan used for the analyzing the collected data was Statistical Package for Social Science (SPSS) research analysis tool. The results of the research analysis indicated that, per the biographical data of respondent, there were 57% female and 43% male according to the gender distribution of respondents. Some of the results recorded from the research analysis were the level of utilization of the e-library, the respondents' level of access to internet, regularity of visiting the e-library, the rate of using the e-library for research by the respondents. Finally the e-library facility has a positive impact on both teaching and learning because it has impact on both teachers and students and other respondents. The research found out that the e-library system has improved the seriousness of reading among the population which has enhanced students' performance for the past years. However the study identified some few challenges of the system which includes limited number of computers, intermittent access to internet, etc. The project if implemented at all SHS schools in the country could facilitate the improvement of teaching and learning processes at that level.

**Index Terms**— e-library, internet connectivity, e-books, population, sampling

IJSER

## 1. INTRODUCTION

The conventional mode of reading paper books in school library is gradually becoming a thing of the past. Students of today love to read information on their smart phones, tablets, etc., especially exciting themselves on information they read on social media like Facebook, twitter, WhatsApp, Tango etc. If the schools could adopt a strategy to meet the reading needs of the students, then reading will become so easy for them especially when they know they can read instructional materials on their phones or computer at the library.

The study focused on getting rid of the conventional library system where students go to library to read paper books. Once the e-library project has been established in the schools like the one at Suma Ahenkro Senior High School (SHS), then students will get access to paid e-library system online with millions of e-books available. What the e-library project seeks to offer is dynamism in educational library system where students will no longer have limitation to books and information they require for academic purposes (Borgman et al, 2000).

The e-library project setup comprises a well layout architectural design of computerized network system, internet connectivity and a facility assistant. Computerized Network System is the physical arrangement of the computers and network cables to enable the computers communicate to each other and for each computer to have access to the internet as illustrated in fig. 1. 1.

The e-library system is designed to use internet service as illustrated in fig. 1.1. The e-library project requires the facility to be continuously connected to the internet. The internet connectivity comes in different varieties depending on which service provider the school chooses to subscribe to. There are three main types of transmission system that internet service providers use to provide internet access to their clients.

- i. Microwave (Radio)
- ii. Fiber Optics
- iii. Satellite

Also a Facility assistant is needed, this person was formerly known as Librarian. The person is always in the library to assist users of the facility to enable them access the facility easily without any difficulty as illustrated in fig. 1.1. The duty of the facility assistance is to guide users to adapt a proper use of the devices, how to keep the facility clean and to see to it that internet service is always available.

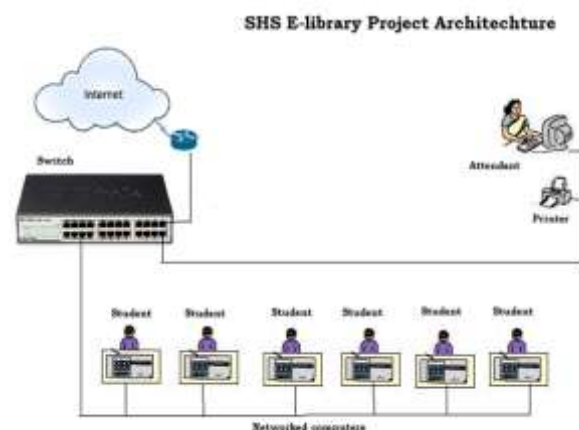


Fig. 1.1 Standard e-library architecture

### 1.1 Problem Statement

The problems associated with the conventional library (old library) system is enormous and as a matter of urgency, the e-library system as MTN has introduced at Suma Ahenkro, must be adopted and implemented in other schools to bring the easiness, comfort and convenience in its usage to the target group. The problem associated with old library includes, Weinberger (1997):

- i. Students usually find it extremely difficult to locate books in the library which they seek information from.
- i. Students could read three to four books but will still not be able to get the exact information they needed to solve their assignment or for further studies.
- ii. Sometimes students get the book they seek information from but may not be fortunate enough to see the pages in the book that contains such information because their colleagues might have torn that page containing that vital information.

When e-library is introduced in other schools, the above mentioned problems would be minimized, because e-books are easy to find using the search engine and pages cannot be deleted, removed or modified.

### 1.2 Objectives of the Study

The aim of this study was to assess the effect of e-library facility implemented by MTN-Gh at Suma Ahenkro Senior High School in Ghana.

- i. Investigate the level of utilization of the e-library facility in the school.
- ii. Assess the impact of e-library on both students and teachers in the school.

- iii. Identify the challenges facing the e-library project in the school.

### 2.1 Related Work

E-libraries are organized collections of digital information. They are constructed collections organized for a particular community of users, and they are designed to support the information needs of that community (Saracevic, 2000). Virtual libraries can offer resources from many sources and in many formats, including audio and video. The items in these virtual collections do not have to reside on one server, but they share a common interface to assist the user in accessing the collection.

The emphasis in e- or virtual libraries is on organization and access, not on physical collections (Baldwin & Mitchell, 1996). School libraries can exist in two different spaces, a physical space and a virtual space. Each space enables different learning activities and serves different purposes for learning (Bruce & Leander, 1997). Many libraries exist only in one space, whereas others maintain a hybrid space, both a physical and virtual space, in recognition of the distinct information uses and learning activities that can occur in each environment. All libraries, whether virtual or physical, create an environment for learning (Abram, 1999).

### 2.1 E-Books and Its Availability

Wikipedia defines e-books (also referred to as electronic books and digital books) as “book length publications in digital form, consisting of text, images, or both, and produced on, published through, and readable on computers or other electronic devices” (<http://en.wikipedia.org/wiki/E-book>). E-books can be books originally published in a traditional way and then digitized for use as an e-book or they can be books written directly for the digital market.

To read an e-book, readers need access to a computer, a cell phone or an e-reader, which is an electronic device, designed primarily for reading e-books, periodicals, and newspapers (Amazon Kindle, Nook, Kobo, iPad for examples). E-books have been readily available since the early 1980's and libraries have been growing steadily in providing access to e-books, either ones available for viewing from an e-library service, or ones that can be downloaded to a computer or e-reader (*Library Journal*, 2010a; 2010b; 2010c).

### 2.2 Internet connectivity platform for E-libraries

E-Libraries require connectivity. If there is no Internet connection, the E-library is inaccessible. Although Internet use is becoming more widespread, many people still do not have Internet access (Cyber Atlas staff, 2002). The term *digital divide* describes the gap between those people with access to the Internet and information technology tools and those without (Digital

Divide Basics, 2002).

This digital divide exists not only between countries, but within countries. *Rethinking the Information Highway: Rethinking the Dual Digital Divide*, the report of the digital divide in Canada as of the year 2000, described the factors that determined home Internet access: income, educational attainment, type of job a person held, and the region of the country in which a citizen resided. Large & Beheshti (2000) pointed out that home Internet access in Canada was concentrated among professional, management, and administrative workers.

*Falling Through the Net*, the report from the American National Telecommunications and Information Administration (NTIA, 2000) showed that even though substantial gains in Internet access had been made with lower-income citizens and that the disparity in Internet usage between men and women had largely disappeared in the United States, home Internet access still differed by region of the country, race, education level, and a person's age.

### 2.3 Challenges of E-Library

There has been a number of concerns about the availability and equitable access to e-books, as well as raising questions about how effective e-libraries really are. According to Siracusa (2009), complaints include:

- the size and quality of the screen;
- resistance to reading on a screen rather than holding a “real book”;
- the e-reading device itself – too small, scared of breaking it, having to charge the batteries, etc.; and
- the lack of e-book standards both in platform and publishing rules. Others point out issues of e-book piracy (Harland, et al, 2010) and conflicts with open access, propriety rights and copyright (Williams, 2011) collectively referred to as Digital Rights Management (DRM).

### 2.3 Challenges of E-Library

There has been a number of concerns about the availability and equitable access to e-books, as well as raising questions about how effective e-libraries really are. According to Siracusa (2009), complaints include:

- the size and quality of the screen;
- resistance to reading on a screen rather than holding a “real book”;
- the e-reading device itself – too small, scared of breaking it, having to charge the batteries, etc.; and
- The lack of e-book standards both in platform and publishing rules. Others point out issues of e-book piracy (Har-

land, et al, 2010) and conflicts with open access, propriety rights and copyright (Williams, 2011) collectively referred to as Digital Rights Management (DRM).

### 3. Study type and design

The study is an exploratory design type, it is the best approach in investigating attitudes toward e-books and e-libraries. The study was designed to conduct an academic research of the benefit and challenges of the introduction of e-library in Suma Ahenkro Senior High School in Ghana. The study deployed a quantitative research method to evaluate the level of utilization and to assess the impact of e-library as compared to the old library.

#### 3.1 Population

The target population of the study was the users of the e-library facility in the school, who are the students, teaching staff, headmaster, and accounts officers of the school. The population of the students is the SHS 1 and SHS 2 that is 224 students; the SHS 3 students have completed school. Teaching staff is 22; two headmasters and two accounts officers.

#### 3.2 Sample and Sampling Technique

The population comprises students, teachers, accounts officers and headmaster. The sample size for the work is 75. The study deployed a probability sampling technique to select the 75 sampled individuals. The student sampled using simple random sampling method, this is to offer every student the chance of being selected for the study. The teachers are stratified into three groups as, science department, Arts department and Business department. From each stratum a simple sampling method is used to select two respondents for the study. The accountant, Bursar and the headmasters were purposively selected for the study.

#### 3.3 Data Collection Method

The best way to gather data in an academic research as this is to have a dialogue with the population on the objective of the research, and to further give them questions to answer through the use of questionnaire for efficient responses. Because of the large size of the sample size the study was limited to only questionnaire. The total number of questions that the questionnaire required the respondents to provide was compulsory 20 questions.

#### 3.4 Validation of Data Collection Method

The validity and reliability of data gathering technique deployed in the study is convenient. The questionnaire research instrument was carefully selected to provide valid and reliable information for the research and analysis. The questions posed to the respondents' co-

vers wider area in the use of e-library facility and the old library infrastructure. These in-depth questions actually offered a greater opportunity for the study to assess and analyze the data of the respondents as to the how the new facility has improve their teaching and learning abilities.

#### 3.5 Data Collection Procedure

Questionnaires were in an electronic format. The link was launched online at [www.drive.google.com/forms](http://www.drive.google.com/forms) for the selected individuals to access the questions on the computers in the e-library facility. Each respondent requires a maximum of 10 minutes to complete all the 20 questions. The process was repeated for all the sampled size in 5 days. 15 individuals were made to respond to the online questions in a day so that the effect of data gathering process was extremely minimal on the school's academic work.

#### 3.6 Data Analysis Plan

After the required data were gathered, the study proceeded to the analysis of the data. This was done using the Statistical Package for Social Science (SPSS) research analysis tool. This tool is one of the most accepted statistical software which is capable of performing extremely complex data manipulation and analysis with simple instructions.

## 4 RESULTS AND DISCUSSION

#### 4.1 Gender Distribution of respondents

Figure 4.1 below shows the gender distribution of the respondents. It shows that out of a sample of 75 respondents, 57% of them are females and 43% of them being Males forming the majority group.

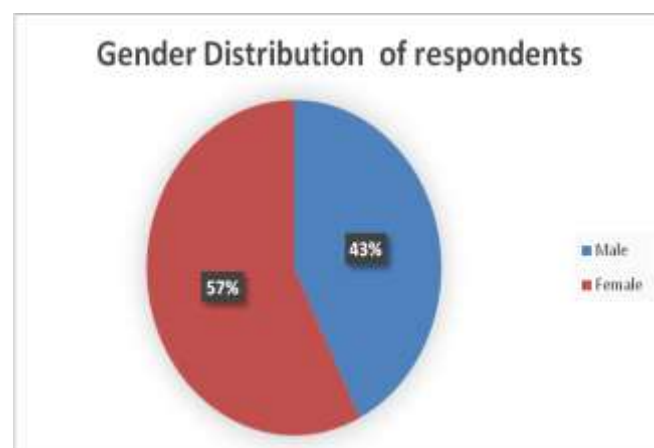


Figure 4.1, Gender distribution of respondents  
Source: Field survey, 2016

### 4.2 Age Distribution of Respondents

The figure below shows the age distribution of respondents. It indicates that majority of the respondent are between age group 15 - 20 years followed by the age group of 21 - 25 years. The least age group was above 40 years old.

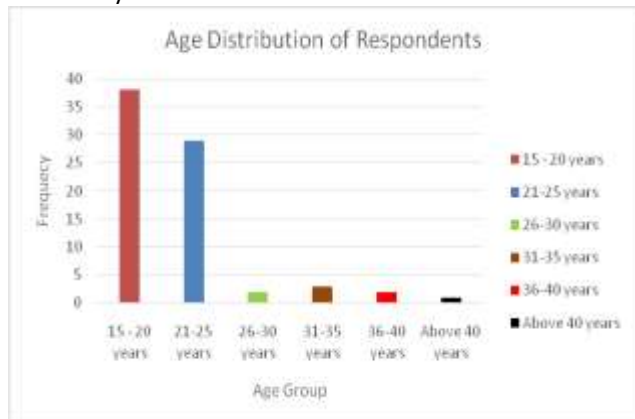


Figure 4.2 Age distribution of respondents

Source: field survey, 2016

### 4.3 Knowledge Level of E-Books and E-Libraries

The figure 4.3 below shows the respondents' awareness of the availability of e-books and e-libraries in the school. It depicts that 25% of the sampled respondents were not aware of e-books, while 75% were aware of the availability of e-books and e-libraries.

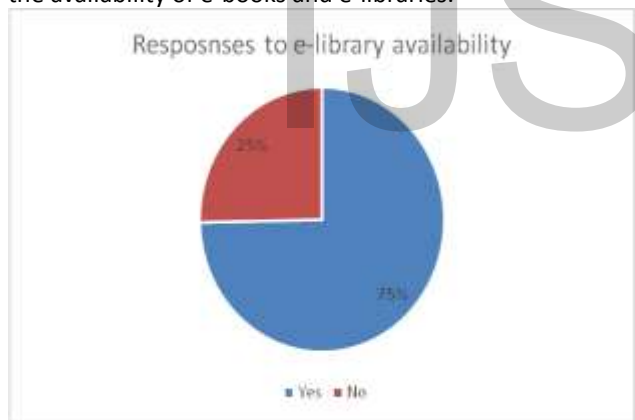


Figure 4.3 Responses of awareness of e-books and e-libraries.

Source: field survey, 2016

### 4.4 Respondents' Level of Access to Internet

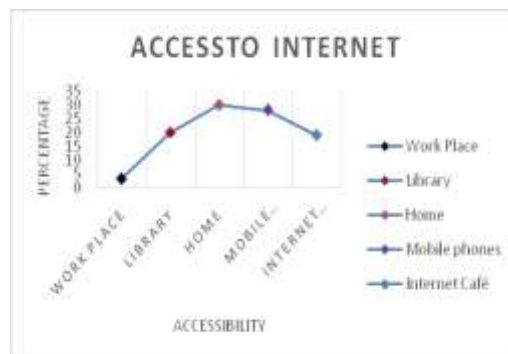


Figure 4.4 Access to internet by the respondents.

The respondents or users of the facility were asked about access to internet. The findings showed that 3.0 percent users acknowledge access to internet at the work, 20.0 percent accessed internet at library, 30.0 percent accessed at home, 28.0 percent accessed internet on mobile phones, and 19.0 percent users access at cyber café.

### 4.5 Regularity of Visiting E-Libraries and E-Books

It was found that 50% users access the internet every day, 29% accessed electronic resources at least an hour in every week, and only 3% of the respondents use the internet once every month.

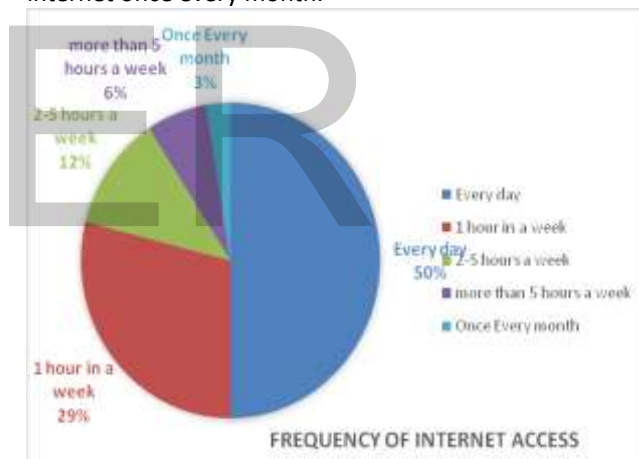


Figure 4.5 how often the respondent use internet for research.

### 4.6 Rate of Using E-Library Books for Research by Students

The table 4.1 ascertains that, the majority of all class years are at least somewhat likely to use library books in their research.

Table 4.1 Rate of Using E-Library Books for Research by Students (n = 68)

Rate of Using Library Books for Research by Students					
	Very Likely	Somewhat Likely	Hard to Say/Depends on Topic	Somewhat Unlikely	Very Unlikely
<b>Library Usage(Chi-square .000)</b>					
Daily	55.9	23.5	16.2	4.4	0.0
Weekly	31.3	27.2	16.2	3.7	1.6
Monthly	41.7	15.5	32.0	9.7	1.0
Seldom	31.7	9.8	36.6	22.0	0.0
Never	0.0	0.0	33.3	0.0	66.7
<b>Class Year (Chi-squared .891)</b>					
SHS One	41.4	34.2	27.3	7.1	0.0
SHS Two	47.4	23.7	18.4	8.8	1.8
SHS Three	46.1	23.5	22.6	4.3	0.0

Source: field survey, 2016

Additionally, well over half of senior classes (SHS Two and Three) (57.1%) say they are very likely to use library books in their research. The finding is encouraging since seniors, who are presumably more likely to be doing the most sophisticated research in their years at school, believe they will find useful books or literature. Though the library has a browsing collection of popular books, most students use books in the library's collection only for research purposes, not for pleasure reading. A sizable minority of students (38.8%) use library books for purposes other than research only once or twice a term; nearly one-third of respondents (31.8%) report they have never use the library in this manner. The results in figure 4.3 depict that 25% of the sampled respondents were not aware of e-books, while 75% were aware of the availability of e-books and e-libraries. In addition, figure 4.5 revealed that 50% users access to internet every day, 29 % accessed electronic resources at least an hour in every week, and only 3% of the respondents use the internet once un every month. Also the table 4.1 ascertains that the majority of all class years are at least somewhat likely to use library books in their research.

#### 4.7 Impact of E-Library On Students

The impact of e-Library on student research habits, the degree to which students think that e-books might change how they do research. More students said they would not prefer e-books for doing research (39.3%) than those who thought they would prefer e-books to print (23.8%). Sizable percentages (36.9%) were not sure if they would prefer e-books or physical books for research. When asked to elaborate on their answers, students who would prefer to use e-books for research cited portability (13.3%) and convenience (7.6%).

#### 4.8 Impact of E-Library On Teachers

The interview of the teacher respondents revealed that most of them learnt about electronic resources or E-libraries through workshops and seminars. The interview found that the dominant source of information was library workshops and from colleagues. Apart from the workshops conducted for teachers the library also markets electronic resources through the library

webpage.

#### 4.9 Challenges Facing the E-Library Projects and its Usage

According to the responses from the questionnaires, some of the problems that are faced by the users when they are using e-library are as follow:

- only a limited number of titles available
- indicated e- library books of the school cannot be accessed from dormitories,
- limited access to computers
- internet access speed and
- slow download speed and sometimes no downloading of files

### 5 Summary

In this study, which sought to assess the effect of e-library implementation and determining the degree to which students used library print collections, the degree to which they used e-books and their perceptions of how they thought library e-books would impact their research behavior. This is conducted at Suma Ahekro Senior High School in the Brong Ahafo of Ghana. The study outcome shows that student respondents do make use of library print collections for research; use varies by rate of library use and class year. Consistent with other findings, students are not very likely to use library print collections for purposes other than research, like recreational reading. The results from this study will serve as baseline assessment measures to evaluate the impact of any future e-book collections on our print collections. Results also indicate that student familiarity with print books has an impact on perceived benefits of a possible library e-book collection.

#### 5.1 Conclusion

The e-library facility has increase students and teachers desire to develop their skills in ICT education. It can be concluded that E-libraries have positive impact on the enhancement of education in the world as a whole. Although the school lacks infrastructure and some facilities, the existing e-resources can fulfill user needs. The investigation of the level of utilization of the e-library facility in the school, the Assessment of the impact of e-library on both students and teachers in the school and identifying the challenges facing the e-library project in the school has been conducted fully in this research.

#### 5.2 Recommendations

The following recommendations are made:



### 5.2.1 School Authority

- The school authority should arrange for more training programmes for users, appoint trained professionals with ICT skills and accommodate users' opinions on subscribing new e-journals. With the growing popularity of e-resources.
- Survey on users should be done at regular interval. Library should also receive information and suggestions from the faculty members and the students, which need to subscribe or not.
- Organize regular training program for the teachers and the students so that they can know about different search interface, latest changes of the journals site and develop sophisticated searching and retrieval skills or techniques
- The school should formulate good maintenance culture and policy for the facility to ensure its sustainability and life span.

### 5.2.2 Government

- Should increase the budget for subscribing more electronic resources for schools with the facility. Without adequate budget library cannot cover all subjects' content. The e-journal cost is increasing day by day and among those the current issues are costlier than back issues.
- Formulate policy to established e-library resources centers in each district in the country. Since this will enhance teaching and learning in our schools.
- Strengthen and train more people to implement and facilitate in these facilities.

### REFERENCES

- Abram, S. (1999). *Are you building your library with the right stuff? Computers in Libraries*, 19(8), 80-86. Retrieved on September 10, 2016, from Infotrac Database.
- Baldwin, C.M., & Mitchell, S. (1996). *Collection issues and overview. Untangling the Web*. Retrieved November 22, 2002, from <http://www.library.ucsb.edu/untangle/baldwin.html>
- Borgman, C.L., Gilliland-Swetland, A.J., Lazer, G., Mayer, R., Gwynn, D., Gazan, R., et al. (2000). *Evaluating digital libraries for teaching and learning in undergraduate education: A case study of*

*the Alexandria Digital Earth Prototype (ADEPT)*. *Library Trends*, 49,228-251.

Retrieved November 20,2016, from EBSCO database.

Bruce, B.C., & Leander, K.M. (1997). *Searching for digital libraries in education: Why computers cannot tell the story*. *Library Trends*, 45,746-771. Retrieved January 19, 2002, from EBSCO database.

Cyber Atlas staff. (2002). *The world's online populations*. *Cyber Atlas*. Int Media Group. Retrieved November 20, 2016, from <http://cyberatlas.internet.com/big-picture/geographics/article/0,5911-151151,00.html>

Digital Divide Basics. (2002). *Digital Divide Network*. Retrieved November 20,2016, from <http://www.digitaldividenetwork.org/content/sections/index.cfm?key=2>

Harland, P., Plante, A., Marker, J., Falter, C., Thompson, K., Guilmett, K, & Hogan, M.

(2010). The high school book club – now with Kindles! *Teacher Librarian*,14811782, 37(5), 57-59.

Hellman, Eesteonn (2010). *Should kids get e-books at school? Library Journal Newsletter*, August, 2010. Retrieved from [http://www.libraryjournal.com/lj/home/886504-264/ebook\\_summit\\_preview\\_should\\_kids.html](http://www.libraryjournal.com/lj/home/886504-264/ebook_summit_preview_should_kids.html)

Large, A., & Beheshti, J. (2000). *The Web as a classroom resource: Reactions from the users*.

*Journal of the American Society or Information Science*, 51(12),1069-1080. Learning support needs: What University of Calgary students need to be more effective learners. (2000). University of Calgary. Retrieved November 28, 2016, from [http://www.ucalgary.ca/library/plans/learning\\_needs/document.html](http://www.ucalgary.ca/library/plans/learning_needs/document.html)

Library Journal. (2010a). *Survey of e-book penetration and use in U.S. public libraries*.

*Library Journal/School Library Journal research report*. Retrieved from [http://c0003264.cdn2.cloudfiles.rackspacecloud.com/Public%20Library%20Ebook%20Report\\_2.pdf](http://c0003264.cdn2.cloudfiles.rackspacecloud.com/Public%20Library%20Ebook%20Report_2.pdf)

Library Journal. (2010b). *Survey of e-book penetration and use in U.S. academic libraries*.

*Library Journal/School Library Journal research report*. Retrieved from [http://c0003264.cdn2.cloudfiles.rackspacecloud.com/Public%20Library%20Ebook%20Report\\_2.pdf](http://c0003264.cdn2.cloudfiles.rackspacecloud.com/Public%20Library%20Ebook%20Report_2.pdf)

ud.com/Academic%20Library%20Ebook%20Report\_2.pdf

Library Journal. (2010c). *Survey of e-book penetration and use in U.S. school libraries.*

*Library Journal/School Library Journal research report.* Retrieved from [http://c0003264.cdn2.cloudfiles.rackspacecloud.com/School%20Library%20Ebook%20Report\\_2.pdf](http://c0003264.cdn2.cloudfiles.rackspacecloud.com/School%20Library%20Ebook%20Report_2.pdf)

National Telecommunications and Information Administration (NTIA). (2000). *Falling through the Net: Redefining the digital divide.* Retrieved November 22, 2016, from <http://www.ntia.doc.gov/ntiahome/fttn99/contents.html>

Saracevic, T. (2000). *Digital library evaluation: Toward an evolution of concepts.* *Library Trends*, 49, 350-370. Retrieved November 25, 2016, from EBSCO database.

Weinberger, M.I. (1997). *Just in time learning with Electric Library.* *Library Trends*, 45, 623-638. *Young Canadians in a wired world: The students' view.* (2001). Envi-

ronics Research Group for Media Awareness Network and Government of Canada. Retrieved October 2, 2016, from [http://www.connect.gc.ca/cyberwise/pdf/wired\\_e.pdf](http://www.connect.gc.ca/cyberwise/pdf/wired_e.pdf)

Williams, E. (2011). Copyright, *e-books and the unpredictable future.* *Publishers Research Quarterly*, 27(1), 19-25. DOI: 10.1007/s12109-010-9196-x

IJSER



# IJSER