WEB USAGE AND PERCEPTIONS OF GRADE 11 STUDENTS OF DE LA SALLE UNIVERSITY SCIENCE AND TECHNOLOGY COMPLEX (DLSU-STC): THE WEB AS AN INFORMATION RESOURCE

Justina P. Garcia
De La Salle University Library
Manila

Abstract

The Web is a rich source of information brought about by modern technologies. This is widely used as source of educational information particularly in DLSU-STC, promoting the science and technology in the K-12 curriculum. The study seeks to identify the web as an information resource in K-12 education focusing on the web usage and perceptions of Grade 11 students. Descriptive statistics, frequency percentage and rankings were the methods used to analyze the data. Results of the study reveal that the students access the Web often mainly for research and projects, and that the Web is significantly used to complete their schoolwork compared to other information sources. Although verification strategies on accuracy of Web information vary, the students are cognizant to perform such methods for their schoolwork. Results also show that the students perceive the Web as a helpful tool in their schoolwork and a reliable source of educational information. Thus, they expect that their reliance and use of the Web will increase in the future. Significances and problems regarding the Web usage and perceptions of the students were discussed and several recommendations were proposed.

***Keywords*:** Web, World Wide Web, Web information, Web usage, Web perception, K-12 Education, K-12 Program, Information resource, De La Salle University Science and Technology Complex

Introduction

The World Wide Web (WWW) is a global network of Internet servers providing access to documents written in a script called Hypertext Markup Language (HTML) that allows content to be interlinked, locally and remotely (Reitz, 2014). The Web is a universal repository of human knowledge

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which provides collection of documents, easy access and retrieval of information that may satisfy the information need of the user (Baeza-Yates & Ribeiro-Neto, 1999). This is the common information resource used by most students and professionals nowadays to process and retrieve relevant information for their queries in a faster way.

The virtues of Internet access for K-12 education have been extolled for nearly a decade, and a number of initiatives around both the country and the world show that many teachers, parents, students, school districts and even states are committed to the vision of K-12 use of the Internet (Futoran, Schofield, & Eurich-Fulcer, 1995). In De La Salle University Science and Technology Complex (DLSU-STC), the Integrated School has intensified the use of the Web in their school work to promote the science and technology curriculum (K-12 Program) throughout its grade levels. This is in accordance with the Philippines' Republic Act No. 10533 (2013) Section 5 page 4, which sets the standards of basic education curriculum to be "research-based." Students at the DLSU-STC begin such "research-based" tracks at Grade 11. In turn, these Grade 11 students tend to rely on the internet to conduct heavy research. From the OCLC report, 84% of library users begin using search engines instead of the standard library website (OCLC, 2010) for research. In fact, a case study on web search behavior of university students at Punjab showed certain preference in search engines (Malik & Khalid, 2009).

Regardless, the acceptance of the WWW among students appears to be very high, with significant growth expected to continue into the next millennium (Johnson & Hignite, 2000). Despite this, students are also aware that web-based information is questionable in credibility, but they themselves do not verify it meticulously (Metzger, Flanagin, & Zwarun, 2003). However, adverse effects of improper and misguided internet resource can cause internet addiction and decrease in scholastic performance (Yang, Lu, Wang, & Zhao, 2014; Austin & Totaro, 2011). This was further supported from the conclusions of Biddix, Chung, and Han (2011) which states that the "Web is a big and scary place with vast amounts of information that even Googling can be pretty exhausting" (p. 180). Thus, it falls on the shoulders of library professionals to aid users how to use internet resources efficiently and effectively (Sampath Kumar & Kumar, 2010). With the implementation of the K-12 Program in DLSU and its "research-based" curriculum, it is imperative to study the Web as an information resource in K-12 Education with a focus on web usage and perceptions of research-inclined students specifically Grade 11 students of DLSU-STC. The present study will serve as benchmark of students' WWW usage for future studies. This will also serve as reference for other schools nationwide in providing access to innovative curricula as well as other libraries in promoting electronic resources for K-12 students. As such, the study's main objectives are: to identify the Grade 11 students' Web usage as an information source in K-12 education; to understand the Web perceptions of the Grade 11 students in relation to the use and impact to their schoolwork; and determine the problems and significances of the use of Web as an information resource in K-12 Education.

Methodology

A letter request to conduct the survey to the Grade 11 students was sent to the IS Principal. Upon approval, the letter was endorsed to the Learning Leader and forwarded to the teachers of each grade section to schedule the distribution of the survey forms. The researcher performed one day classroom visits to conduct the survey. A questionnaire was used to gather data to study the Web usage and perceptions of the Grade 11 students of DLSU-STC. It contained two parts: Part 1 was about the profile of the students; Part 2 contained questions on the Web usage and perceptions and was patterned to previous studies (Metzger et al., 2003). Resulting data from the questionnaires were interpreted and analyzed thoroughly to understand the Web usage and perceptions of Grade 11 students. Problems and significances of the use of the Web as an information resource in K-12 education were determined based on the findings.

The total number of enrollees of Grade 11 level for SY 2013-2014 were 140 students, distributed into 5 Sections (Section A= 29, Section B= 28, Section C=27, Section D= 27, Section E= 29). However, since the Section C students were on their 3-day Retreat activities, only 4 Sections were surveyed. In addition, there were absentee students in the class. Out of the 113 questionnaires distributed, 107 were valid with a response rate of 94.7%. The respondents answered the questionnaire on the average time of 10 minutes.

Descriptive statistics, frequency percentage and rankings were the methods used to analyze the data.

Findings

Profile of the Students

Table 1 show the frequency distribution of students by section. From the table below, Section A has 28 students (26.17%), Section B has 26 students (24.3%), Section D has 26 students (24.3%), and Section E has 27 students (25.23%). Based on the total number of enrollees, the four sections have a total of 113 students but there were 6 absentees during the survey.

Table 1
Distribution of Grade 11 Sections

Section	Frequency	Percentage
A	28	26.17
B	26	24.3
D	26	24.3
E	27	25.23
Total	**107**	**100**

Table 2 presented the frequency distribution of Grade 11 students by gender. It showed that for 107 students surveyed, 58 or (54.21%) are male and 49 or (45.79%) are female. Grade 11 is predominantly composed of male students.

Table 2
Gender Distribution of Grade 11 Students

Gender	Frequency	Percentage
Male	58	54.21
Female	49	45.79
Total	**107**	**100**

Web Usage

Frequency of Web Access

The frequency distribution of Web access is presented in Table 3. A large percentage of response from 84 students (78.5%) access the Web often to search for information. There are 12 (11.21%) who access the Web once a day, while 7 (6.54%) access the Web once a week. There are 4 (3.74%) who use the Web rarely. However, nobody uses the Web once a month and never at all. This showed that most of the grade 11 students frequently access the Web. This is similar with the results of Malik and Khalid's (2009) study whose reported students used it regularly.

Table 3
Frequency of Web Access to Search Information

Web Access	Frequency	Percentage
Never	0	0
Rarely	4	3.74
Once a day	12	11.21
Once a week	7	6.54
Once a month	0	0
Often	84	78.5
Total	**107**	**100**

Location of Web Use

Table 4 identifies the location of Web use of the respondents. It was found that a majority of the students, which is 81, (75.71%) used the Web at home, a finding similar to previous research (Malik & Khalid, 2009). Seventeen (15.89%) searched the Web at the library while 7 (6.54%) use it at school. Only 2 (1.87%) used the Web at the Internet café and no other location (0%) was given by the respondents. This is in agreement with Clifton (2006), where she concluded that "home technology access is a stronger sign than school access…" It also revealed that majority of the students used the Web in their home because of the limited access in the school. However, there are still certain numbers of student that visit the library to do Web searching.

Table 4
Location of Web Use

Location	Frequency	Percentage
Home	81	75.71
School	7	6.54
Library	17	15.89
Internet Café	2	1.87
Others	0	0.00
Total	**107**	**100**

Educational Purpose of Web Use

To identify the educational purpose of using the Web, Grade 11 students were asked to select on the given choices that would apply (see Table 5). Results indicate that a large number of students (27.06%) searched the Web to do research and projects and 23.34% to view class announcements and news information. There were 85 (22.55%) who used the Web for checking and completing assignments and 81 (21.49%) used the Web to contact teachers and classmates. Eighteen students (4.77%) were found to be engaged in accessing the Web OPAC, e-books and online databases. However, a few (0.8%) responded for other educational purpose related to education like sports and general information. The findings revealed that the Web is a valuable source for their educational activities and that they used it for the purpose of learning. Results strongly agreed with the studies of Biddix et al. (2011), Malik and Khalid (2009), and Metzger, Flanagin and Zwarun (2003). This also showed that the Web is a useful source of information in their K-12 curriculum focusing more on research.

Table 5
Educational Purpose(s) of Web Use

Educational Purpose(s)	Frequency	Percentage
Do research/projects	102	27.06
Contacting teachers and classmates	81	21.49
Checking and completing homework/assignments	85	22.55
Getting class announcements and news information	88	23.34
Accessing Web OPAC, e-books and online databases	18	4.77
Others	3	0.8

Other Information Sources Used

Table 6 presents other information sources used by the Grade 11 students. The results revealed that aside from the Web, books are used by the majority of students (60.84%), while 30 (18.07%) also used the newspapers. There were 21 (12.65%) students who identified magazines and 14 (8.44%) used school journals. Metzger et al. (2003) strongly referred this in their report that books were the most frequently used information source by the students. This means that the students see books as a secondary information resource, more reliable, but less efficient, as Biddix et al. (2011) pointed out.

Table 6
Other Information Sources Used

Other information sources	Frequency	Percentage
Books	101	60.84
School journals	14	8.44
Magazines	21	12.65
Newspapers	30	18.07

Frequency of Web Usage Compared to Other Sources of Information

The question asked the Grade 11 students how often they use the Web compared to other sources of information. To compare the frequency of use, a 4-point scale was used, wherein a scale 1 to 4, 1 being never and 4 being often. Results in Table 7 show that the frequency of Web use bested other sources of information with 76.87% of the respondents often use the Web for school work. Although occasionally used (46.77%), students still consult the books as their next source of information. Fifty-eight (46.77%) students occasionally used the Web, 59 (33.52%) rarely used it, and 37 (36.63%) responded *never*. Results revealed that the Web is significantly used as a primary information resource by the respondents. Again, from Biddix et al. (2011), students prefer the speed at which they obtain their information (Internet) over its accuracy (books, and other printed materials).

Table 7
Web Used Compare to Other Sources of Information

Source of Information	1=Never		2=Rarely		3=Occasionally		4=Often	
	F	P	F	P	F	P	F	P
Books	9	8.91	21	11.93	58	46.77	19	14.18
School Journal	37	36.63	51	28.98	18	14.52	1	0.75
Magazines	31	30.69	59	33.52	15	12.10	2	1.49
Newspapers	23	22.77	45	25.57	30	24.19	9	6.72
Web	0	0.00	1	0.99	3	2.42	103	76.87

F = Frequency P = Percentage

Verification of Accuracy of Web Information

In terms of verification of accuracy of information for their school work, the students were asked to rate the verification were asked to rate the verification strategies they performed, (see Table 8) A five-point scale was used to gauge the student's Web verification techniques, where in scale 1 to 5, with 1 being "Never" and 5 being "All the time". The results demonstrated that the response of students varies in performing the verification of accuracy of Web information. However, it was still identified that large number of students implemented the verification strategies "all the time" with 48 (25.53%) check other sources to validate the information online. Whereas, 43 (21.61%) check if the information is current "often". There are students performed the verification "check to see who the author is/his goals and objectives and qualification/credentials", 24 (23.30%) occasionally, 22 (59.46%) rarely, and 5 (62.50%) never. The table also showed that some students performed the verification occasionally and rarely while very few respond that they never did the verifications strategies. This means that majority of the Grade 11 students were cognizant to verify the accuracy of Web information for their school work. From Biddix et al.'s (2011) second recommendation, it is quite clear that students are not trained or instructed in how to find and evaluate resources. Thus their strategies vary, which implies that they may not know the correct strategy of verification (Metzger et al., 2003), but they still value verification regardless.

Table 8
Verification of Accuracy of Web Information

Strategies	1=Never		2=Rarely		3=Occasionally		4=Often		5=All the time	
	F	P	F	P	F	P	F	P	F	P
Check if the information is current	1	12.50	4	10.81	21	20.39	43	21.61	38	20.21
Check if the information is complete and comprehensive	1	12.50	4	10.81	17	16.50	42	21.11	43	22.87
Consider whether the views represented are facts or opinions	1	12.50	3	8.11	23	22.33	39	19.60	41	21.81
Check other sources to validate the information online	0	0.00	4	10.81	18	17.48	37	18.59	48	25.53
Check to see who the author is/his goals and objectives and qualification/ credentials	5	62.50	22	59.46	24	23.30	38	19.10	18	9.57

F = Frequency P = Percentage

Web Perception

Web Impact to School Work

The Grade 11 students were asked about the impact of the Web to their school work, (see Table 9). A four-point scale was used to rate their perceptions on how the Web helps their schoolwork. Study revealed that the Web was very helpful for increasing the number of sources found in researching assignments with 69 (28.63%), saving time searching for information with 79 (32.78%), and improving the quality of their written work with 49 (20.33%). The students felt the Web is helpful in achieving higher grades with 54 (35.29%) students agreeing to this. Overall, the Web is a very useful source of information as strongly supported by previous researchers (Biddix, et al., 2011; Clifton, 2006; Jones, Johnson-Yale, Millermaier, & Perez, 2008; Metzger et al., 2003).

Table 9
Web Impact to Schoolwork

Web Impact	1=Not very helpful		2=Somewhat helpful		3=Helpful		4=Very helpful	
	F	P	F	P	F	P	F	P
Increasing the number of sources found in researching assignments	0	0.00	6	17.65	32	20.91	69	28.63
Saving time searching for information	0	0.00	4	11.76	24	15.68	79	32.78
Achieving higher grades	0	0.00	9	26.47	54	35.29	44	18.26
Improving the quality of my written work	0	0.00	15	44.12	43	28.10	49	20.33

F = Frequency P = Percentage

Web as a Reliable Source of Educational Information

Figure 1 presents the perception of the Grade 11 students about the Web as a reliable source of educational information. Analysis of the result revealed that students strongly perceived the Web is a reliable source of educational information. It is very significant in the number of students respond to "Yes" with 97% while 3% said "No".

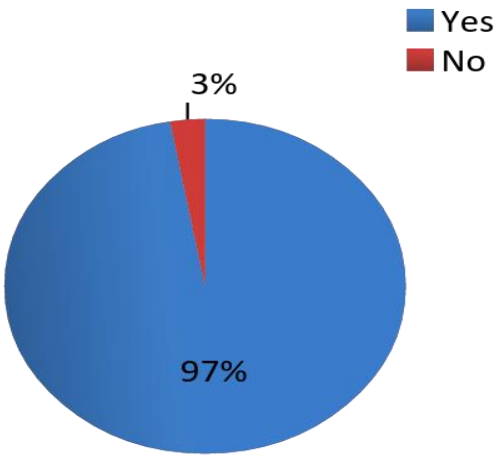

Figure 1. Web perception as a reliable source of educational information.

Web Reliance and Use in the Future

Figure 2 revealed that majority 99% of the students agreed "Yes" that their reliance and use of the Web will increase in the future while only 1% responded "No". This is what Johnson and Hignite (2000) and Metzger et al. (2003) predicted in their studies.

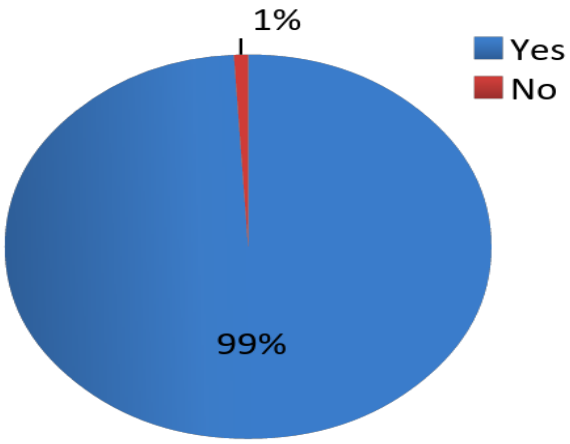

Figure 2. Reliance and use of the Web in the future.

Conclusions and Recommendations

The Web promotes great technological change in the academe particularly in K-12 education. The present study has presented the Web usage and perceptions of the Grade 11 students of educational information and especially for their school work. Grade 11 students at STC are focused on "research-based" science and technology specialization track under the K-12 Program. Therefore, full access to Wi-Fi for the IS students should be provided to maximize their research use of subscribed online databases and other online reference resources. This also suggests that the students are in need of possibly using 4G environment in accessing such large amount of "research-based" information. 4G environment is the fourth generation of mobile telecommunication technology that provides high speed internet as defined by Gu, Huang, and Zhang (2003). A follow-up study regarding the students' readiness in using the 4G environment in doing research is highly recommended.

Findings show that accessing web information is the major practice done by the students to respond to their queries and research garnering 27.06% (highest compared to other purposes). This means that most students think that the Web is a reliable source of information and that all answer to their schoolwork and research are in the Web, which in turn affects the books and other printed

materials' usage. This false sense of security was also observed by reports from Metzger et al. (2003). Although the students' verification strategies for accuracy of Web information vary (about 20% in each category and equally distributed), they are already responsible enough in performing those methods for their research and schoolwork in agreement with Jones et al. (2008). It is also understood that they are very satisfied with the Web as source of educational information and the impact to their schoolwork is positive. With this, the Grade 11 students expected that their reliance in the Web as source of educational information will increase in the future with 99% of the students surveyed. However, the Web is a big place with millions of information, students may be exhausted in Web searching and their total reliance on it. This can cause information overload as observed by Bawden and Robinson (2009) and Biddix et al. (2011).

Obviously, the use and access to the Web in the school particularly in the library are necessary to support the research needs of the students as most students still prefer home use of the web against the library (75.71% vs 15.89%) which is in agreement with Clifton (2006). Nevertheless, proper guidance should be provided by the educators and parents for the students regardless of the location of web usage (whether it is at home, school, at the library, or at an Internet café). This is to ensure that the information they get from the Web will not create harm for them and that only educational information will be accessed by the students. Though the Web offers information that is very useful for educational research, it also allows them to engage in unethical behaviors like academic cheating and plagiarism. Previous reports of Rumbough (2001) about cheating using the Internet and plagiarism were identified by Jones et al. (2008).

The DLSU Libraries have vast collection of online resources that can be accessed in the library website which are more reliable to students' research compared to web resource. Some of these include electronic databases like ProQuest, IEEE/IET Electronic Library (IEL), LexisNexis Academic, SpringerLINK Journals, Wiley Online Library, EBSCO, Science Direct and Gale Cengage databases; ebooks from ebrary, Springer eBooks collection and Gale Virtual Reference Library that would fit for K-12 academic track (these include Accountancy and Business, Humanities and Social Sciences, and Science and Technology). Therefore, it is necessary to assess collection pertaining to K-12 information needs and have collaborative acquisition of online resources that are accessible in a 4G environment. Another approach similar to the study of Futoran (1995) is to balance the reliance of the students between the Web usage and library online resources. Some library service that could possibly help the Grade 11 students are: a.) providing lists of accredited websites that the students may use based on their subject curriculum, b.) offer consultation service if students are not sure whether they can rely on the Web information that they searched and downloaded, and c.) conduct orientation and online tutorials through "minute-to-learn-it" videos alike, and other advanced reference services offered by the Libraries through the DLSU library website. The DLSU Libraries professionals and the IS educators should actively work to implement training programs like Information Literacy (IL) sessions on effective access and use of electronic resources as what Sampath Kumar and Kumar (2010) recommended in their study. Lastly, this study suggests librarians to concentrate more on library

projects that would promote the advanced services of the library and to support the information and research needs of the students.

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