How Millennials Learn: The Use of the Internet in the School Library

By Rachmawati and M. I. Ekowiyanti

Most students in secondary school today are born after the year 2000. They may be categorised as Millennial Generation (Carter, 2009), Generation Z, or Post-Millennial. They are the children of Generation Y, or might have parents who are Millennial. Internet technology has been available to them since a young age. Most Post-Millennials have interacted with the internet since a very young and are comfortable using technology. They use technology to interact with others through social media, to communicate with other through texting, instant messaging and email, to buy and sell through e-commerce channels and to search for information using search engines.

To be able to facilitate and improve their learning, school librarians have to understand the character of this generation. This generation understands that technology has opened wider opportunities for them to learn about anything they like. They might still go to conventional schools, although some of them choose home-schooling or other alternative education pathways, but they learn many things independently. Information available on the internet, and their own networks, have helped them to accomplish this.

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One of the learning resources available for this generation is the library. Indonesian education regulations mandate that every school should have a school library. In reality, not all schools do and not all school libraries meet the minimum standard of a good school library. The current national curriculum requires the integration of technology in all subjects. Many teachers translate this as the use of the internet in learning activities. Most of them assume that students are more familiar with the internet than they themselves are. They often let students search for information on the internet without equipping them with proper information skills. Yet, sometimes they complain that students spend too much time on the internet and that the result is often low-quality work.

This research focuses on the use of internet in the library by 7th graders in the Al Kausar Boarding School and the Santa Laurensia School. Both schools are equipped with adequate numbers of computers connected to the internet with internet access available in the library. Learning resources in both schools are mostly in printed formats with a growing amount provided in digital format. Qualified learning resources available on the internet written in the Bahasa Indonesian language are still limited. For 7th Graders, this can be a challenge.

This study aims to seek a better understanding of library and internet usage by students of the Post-Millennial generation in order to facilitate their learning activities. This research will try to answer these following research questions:

- How students use the internet in the library?
- For what purposes do students use the internet in the library?
- How students use the internet for learning?

Literature Review

Internet in the library

Advancement in technology has allowed the integration of technology in teaching and learning activities. Along with the integration of technology in school, the library, as learning resources centre, has become the vanguard in the use of technology. The internet is used as both a communication tool and an information source which the librarian is best trained to use (Jurkowski, 2010).

Electronic mail, or email, is the oldest feature of the internet for communicating with almost everyone around the world. In schools, the librarian is among the first in using it to communicate with other librarians. Teachers and

students also use it to communicate with each other or experts. Later, communication also came in the form of a mailing list and instant messaging or chat facilities.

The internet as an information source is a most important feature for a library. Research in Greece reveals that the internet is an essential tool for a librarian. They use the internet for providing quick and quality reference services to users (Semertzaki, 2008). The internet provides both free and paid information services. Free information can be accessed in millions of websites without any organisation and almost no regulation on its content. To access more authoritative and qualified content, there are subscription information databases. Databases are familiar among academic and special libraries, but not school libraries.

In Indonesia, technology integration in school libraries has become one of the indicators of school library performance. It can be assessed in at least in two aspects:

1. Through hardware availability, i.e. the number of computers connected to the internet for student use and with digital collections, such as an e-book.
2. Through information services using digital or electronic devices, both online and offline.

The use of subscription databases is not common in school libraries. This is because of the high price and the because of the language barrier, as most content is in English. In the early 2000s, some locally-made learning content, in CD format, was produced. However, these are now beginning to disappear in the market in response to the vast growth of free content available on the internet. Since 2010, The National Library of Republic Indonesia (PNRI) subscribed to several databases and made them available freely for its members. PNRI also launched Indonesia One Search (IOS), a portal that enables users to search information from all libraries in Indonesia which form part of the network. It provides metadata for the collections held by its member libraries, as well as full-text or abstract of academic digital resources.

Library collections and services aim to fulfill the needs of their users. The availability of the internet in a school library is almost universal. Pew Internet Survey shows that 77% of the respondents said that free access to the computer and the internet is a “very important” service of a library (Zickuhr, Rainie, & Purcell, 2013). Internet service is also needed to facilitate 21st century learning. Among the characteristics of this are active learning and collaboration among learners in their own classes and with others around the world (Wisniewski, 2010). This is where the internet plays its role.

Internet use behavior

As the internet is primarily about information, to understand its uses it will be best to understand in term of information behaviour. Bates defined information behavior as:

> *The many ways in which human beings interact with information, in particular, the way in which people seek and utilise information* . . . (Bawden & Robinson, 2012: 188).

However, information behaviour covers not only the active seeking of information, but also a much wider range of activities (Davis & Shaw, 2011) or, as Wilson defined it:

> *The totality of human behaviour in relation to sources and channels of information including both active and passive information seeking and information use. Thus, it includes face-to-face communication with others, as well as the passive reception of information as in, for example, watching TV advertisements, without any intention to act on the information given* (Bawden & Robinson, 2012: 188).

To study youth information behaviour, Agosto (2011) suggested identification of its information needs, which includes:

- peer, family, and other relationships
- popular culture
- emotional needs
- physical health and safety, including sexuality
- consumer needs
- academics and college
- leisure activities and interests
- careers.

To satisfy their information need, young people will search within their information literacy comfort zone (Farmer, 2016), such as from family and friends. When searching for more quality information, they often experience difficulties in comprehending the information they find, to evaluate the sources and to understand the ethics of information use.

Based on their research, Buente and Robin (2008) classified the use of internet into four dimensions. These dimensions are information, communication, leisure and financial transactions. Activities that represent those dimension are described in Table 1 below:

Table 1. Dimension of Internet Use

Dimension of internet use	**Activities**
Information	Get news online
Communication	Send and receive emails, Instant Messaging and chatting
Leisure	Go online just for fun, watching films, listening to music
Financial transactions	Buy or sell a product online

Internet access in the school library is categorised as information seeking in connection with learning activities within a school. Studies done in some schools in Indonesia show that students use the internet mostly for completing school assignments, logging on to social media, looking for information related to personal interests, and communicating through email and instant messaging (Driani, 2009; Qomariyah, 2009 and Ilmi, 2014). A survey in India also shows that students in secondary schools use the internet mostly to search for information related to school work.

In seeking information from the internet, children or young adults might encounter barriers to finding the right information. Nolan (2003) studied internet and library usage among secondary school students in Ireland and found that, without proper guidance, school children have difficulty using the internet effectively as an information retrieval tool. Such difficulties often lead to plagiarism and the belief that the internet is superior to print media.

How millennials learn

The use of technology from a young age by the Millennial generation affects the development of their intellectual competences and cognitive skills. Pedro (2006) lists characteristics of Millennial learning behavior as follows:

- Accessing information mainly from non-print, digital sources.
- Giving priority to images, movement, and music over text.
- Feeling at ease with multi-tasking processes.
- Gaining knowledge by processing discontinuous, non-linear information.

Learning takes place in several processes. Students have to become aware of the content and be stimulated to pay attention, comprehend, make meaning, relate and integrate the content into existing knowledge and to use or communicate it (Farmer, 2016). These processes may vary amongst students due to factors such as personality, biology or learning habit (Farmer, 2016; Thompson, 2012).

When asked how they learn, Millennial learners say that they learn best through active participation and group work. They love to learn by doing and interacting. Seeing visual examples helped them to learn. They will remember what they have learned if the knowledge is applied in a real-world setting. The least effective way to learn is when a teacher reads from a PowerPoint presentation or a book, such as in long lectures and memorisation activites (Wisniewski, 2010).

Methodology

This study employs the case study method to describe the usage of the internet by secondary school students in the school library. The population of the study comprises the students of Grade 7 at SMP or in the secondary school in the Al Kausar Boarding School and the Santa Laurensia School. Both schools have good internet facilities in their school library. They are religious-based schools; one is an Islamic school and the other is Catholic. Al Kausar is a boarding school where students rely heavily on the school library to access internet, whereas Santa Laurensia is a regular school where students can access the internet at home.

The instrument used to collect data from the students was a closed-ended questionnaire. The questionnaire consisted of 22 questions divided into three sections, with a caption on the top of each of the three sections:

1. Respondents' data
2. Use of internet in the school library
3. Use of internet for learning activities

Some questions provide answer options on a scaled frequency ranging from 1 (never) to 4 (always). 217 valid responses were received out of 235 questionnaires distributed. Data was organised and analysed using MS Excel.

Findings

Use of internet

Students' use of the internet was explored through several questions. Regarding the frequency of internet use, 69% of students used computers and accessed the internet occasionally when they visited the library and 28% of students used them often. Only a few used the internet on both extreme scales (always and never). The mean or average of the frequency of internet usage in the library was not high, at only 2.29 (on scale of 1 to 4). Table 2 demonstrates that gender did not play a significant role in the frequency of internet use.

Table 2. The frequency of internet access

	Always	Often	Occasionally	Never	Total
Boys	4	35	83	3	125
Girls	1	25	66	0	92
	5 (2%)	60 (28%)	149 (69%)	3 (1%)	217
			Mean = 2.29 ; Std. Dev. = 0.526		

In question 5, students were asked about the location of internet access. Besides the school library, 96% (208) of students accessed the internet from their home. They also accessed the internet in other places, such as in the general school area (other than the library) and in public places. Respondents accessed the internet using more than one device. 126 respondents used a cell phone to access the internet, while 61 used their own laptop or PC. This finding suggests a reason as to why the frequency of internet usage in the library was not high.

Question 4 was about the duration of internet use in a week. Almost a half (48%) of students accessed the internet for more than 5 hours in a week, a quarter (25%) accessed it between 3 and 4 hours, 17% accessed it between 1 and 2 hours, and 9% accessed the internet for less than 1 hour, as shown in Table 3 below:

Table 3. Duration of internet access in a week

Hours of access	Number	%
More than 5 hours	104	48 %
3 to 4 hours	55	25%
1 to 2 hours	37	17%
Less than 1 hour	20	19%

The purposes for which students accessed the internet was sought in Question 7. Table 4 shows the frequency of the various purposes which were described. 54% of students using the internet in the library were frequently searching for information related to school work. 43% often used the internet to learn something new. 77% never used the internet for financial transactions and 59% never used the internet to download games. The most frequent use of the internet was for subject-related information seeking (mean = 3.074) and less frequent use of it was for financial transactions (mean = 1.244).

Table 4. Purpose of internet use

Purpose	Frequency				Mean	SD
	Always	Often	Occasionally	Never		
Financial transaction	0	6	44	167	1.244	0.48
Subject-related information seeking	61	117	34	5	3.074	0.721
Entertainment information seeking	29	49	47	92	2.074	1.086
Learning how-to	25	94	78	20	2.565	1.086
Communicating with family	32	56	23	106	2.065	1.154
Communicating with friends	36	50	35	96	2.106	1.148
Listen to music	30	48	30	109	1.911	1.132
Playing games	30	32	44	111	1.908	1.099

Social media access	39	34	28	116	1.982	1.187
Download (music, movie, game)	16	28	45	128	1.797	1.028
Reading news	7	27	92	91	1.785	0.786

Respondents were asked to indicate the frequency of use of different internet features, such as email, web pages, search engines, chat facilities and forums. Of 217 students, 52% occasionally use email; 49% often go straight to websites; 32% often use search engines before going to websites. The most popular internet feature used was visiting web pages (mean = 2.880) and the least popular was forums (mean = 1.838). Table 5 below describes internet feature usage:

Table 5. Use of internet features

Internet features	**Frequency**				**Mean**	**SD**
	Always	**Often**	**Occasionally**	**Never**		
Email	17	81	112	7	2.498	0.686
Web pages	47	107	54	9	2.880	0.788
Search engines	61	69	58	29	2.751	1.019
Chat facilities	63	75	39	34	2.751	1.062
Forums	9	43	79	86	1.838	0.859

On the question of internet skills, 120 students (55%) think that they are quite capable in using the internet, 74 (34%) believe they are competent, 19 (9%) believe they are highly competent, and no-one stated that he/she didn't know how to use the internet. Students acquired their internet skills mostly (59%) by learning on their own, 39% learnt from home (from a family member) and only 28 students learnt at school.

Table 6 shows that the biggest problem in accessing the internet was a slow connection (mean = 2.556). 47% of students said that they often encountered poor connectivity when accessing the internet and 44% said that their internet connection was often slow. Price and facilities did not appear to be a problem for most students. 57% of students did not believe that facilities affected their access. For 54% students, internet skills were not a problem and 53% did not think that internet access was expensive. Table 6 shows the barriers to internet access by students:

Table 6. Barriers to using the internet

Internet access problems	**Frequency**				**Mean**	**SD**
	Always	**Often**	**Occasionally**	**Never**		

Not enough time	8	47	140	22	2.192	0.66
Discouragement from parents/teacher	8	34	111	64	1.935	0.773
Lack of funds	9	17	76	115	1.642	0.799
Slow connection	21	96	86	14	2.556	0.759
Too much information	15	43	96	63	2.037	1.572
Inadequate skills	3	14	83	117	1.567	0.685

On the quality of information found on the internet, 80 students chose the information based on its convenience (easy access), 76 chose based on accuracy, and 65 chose information they considered complete. A small number of students chose information based on currency, relevancy and visuals.

Use of internet for learning

The next section of the survey was on using the internet for learning. Table 7 depicts the results:

Table 7. The frequency of internet use for learning

	Always	**Often**	**Occasionally**	**Never**	**Total**	**Mean**
Boys	16	71	38	0	125	2.823
Girls	13	56	23	0	92	2.901
	29 (13%)	127 (59%)	61 (28%)	0	217	
			Mean = 2.856 ; SD = 0.626			

Of 127 students, (59%) often used the internet for learning and 61 (28%) used it occasionally. Girls have a slightly greater frequency (mean = 2.9) than boys (mean = 2.8).

Question 15 probes what students learn from the internet. 146 of the students used the internet to learn subject-related content and 87 students also used it to learn things related to their personal interests or hobbies. Students gave more than one answer to this question. Table 8 illustrates the responses:

Table 8. What students learn

	N
Subject-related content	146

Personal interest (hobby)	87
Popular issues among students	15
Popular issue	17

On the question of how students learn from the internet, 138 students stated that they learn from websites and blogs, 104 students learn by watching YouTube, 40 students learnt things from social media, and 20 students learnt from various forums they had joined. Only 11 students learnt things from an e-book they read or downloaded from the internet. 53% of the respondents joined a community of their interest on the internet or social media.

Table 9. Subjects assigned to use the internet

Subject	Always	Often	Sometimes	Never	Mean	SD
Bahasa Indonesia	6	44	157	10	2.214	0.563
English	11	70	117	19	2.34	0.709
Biology	19	116	80	2	2.693	0.639
Religion	2	20	120	75	1.757	0.653
Science - Physics	9	59	125	24	2.237	0.712
SOSE - Economics	12	40	102	63	2.005	0.838
SOSE - History	13	45	92	67	2.023	0.878

The responses from respondents to question 18, asking which subjects assigned students the task of using the internet, are shown in Table 9. Biology is the subject which most frequently required students to use internet (mean = 2.69). The least frequent use was for the subject of religion (mean = 1.757).

The most common assignments were in the form of answering questions from a work sheet (by seeking information on the internet) (mean = 2.708), followed by writing an assignment (paper or report) (mean = 2.678), creating a PowerPoint presentation (mean = 2.621), creating a poster (mean = 2.333). The least common was making a short video (mean = 2.085).

The issue of the multitasking learner is probed in question 20. Students were asked what they are doing when using the internet for learning. They were free to choose more than one response option. Out of 217 students, only 22 (10%) focus on their work. The rest do other things simultaneously. Table 10 describes what students were doing while learning using the internet.

Table 10. Activities while learning on the internet

Number of other activities	N	%	Type of activities	N
0 (Focuses)	22	10%	**Listen to music**	134
1 other activity	93	43%	**Access social media**	81
2 other activities	62	29%	**Browsing other things**	82
3 other activities	23	11%	**Access email**	47
4 other activities	14	7%		

Despite these figures, only 4 students (2%) said that they always need additional time to finish their work, 74 students (34%) said that they always finish their work on time. The majority (64%) said that sometimes they can finish on time, other times not.

On the question of their preferred learning style, nearly half of the students (48%) stated that they are visual learners, 64 students (29%) stated that they are auditory, 48 (22%) are kinesthetic and 23 students (11%) are not sure of their learning styles. Table 11 below shows the result:

Table 11. Student learning style

Learning style	N	%
Visual	82	48 %
Auditory	64	29%
Kinesthetic	48	22%
Not sure	23	11%

Discussion

The main purpose of this study was to find out how students learn when using the internet in the library. The frequency of internet use in the library was moderate, with a duration of more than 5 hours in a week. This indicates that students have limited access to the internet. Students in both schools spent 8 hours in school and during school hours they can only access internet in the library or in their laptop under teacher supervision.

Most access to the internet is primarily for educational purposes. This is in line with the previous studies on students in secondary schools in Indonesia. The current curriculum, known as Kurikulum 2013, requires students to be more active in learning by finding their own sources in various information resources. The internet is the easiest

and most convenient information resource for them. They go straight to websites or use a search engine to find the necessary information and use and choose the easiest information to find.

The frequency of subjects that required students to use the internet is also moderate. Assignments were often in traditional formats, such as completing a teacher-prepared worksheet or writing a short report. For 7th grade students, these could be suitable assignments, considering their age and intellectual maturity. This kind of assignment also supports their choice of the internet features they used. This also explains why respondents mostly used websites and blogs for their learning resources. They can easily cut and paste the content into their assignment. The assignments set by teachers did not encourage high order thinking skills.

Although teachers have incorporated technology into their teaching, the type of assignments that teachers required students to complete did not support the characteristics of the Millennial learner. The study reveals that students are multitaskers and visual learners. Only a small number of students focus solely on their work when using the internet. Most of them do other things, such as listening to music, browsing around, logging into their social media account or checking their email. These findings are in line with other studies. These practices often result in insufficient time being available for finishing work on time or meeting the requirement that teachers gave. Teachers must prepare their teaching carefully, so the teaching is more effective.

Conclusions and recommendations

Based on the study, it can be concluded that 7th grade students are using internet services in the school library moderately for learning purposes. Despite their nature as Millennial learners who prefer image, movement and music over text, they still use traditional features of the internet in learning to easily finish their assignment on time. Largely, students still lack information and digital literacy.

Recommendations for libraries and school librarians:

- Teacher-librarians should be information and digital literate
- Teach students information and digital literacy.
- Make sure students have adequate comprehension of digital content.
- Libraries should develop a digital collection.

It is also recommended that teachers be more aware of the characteristics of Millennial learners. Prensky suggests the following:

- Educators should embed digital and technological content in their teaching.
- Educators should learn new content and teach it using new technologies that Digital Natives are both familiar with, and which make sense to the Digital Natives.
- Educators should think deeply and research how computers and electronic, digital tools can be utilised in teaching in ways that help our learners and to instill knowledge that needs to be internalised.
- Use the skills of our Digital Natives to guide our search for Digital Native methodologies that can help us improve our effectiveness in the teaching of all subjects and at all levels (Kivunja, 2014).

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Rachmawati *is a school librarian in Al Kausar Boarding School. She has been working as a school librarian for more than 20 years. Her interest is in information/digital literacy and technology. She serves on the committee of the Indonesia Association of School Librarians (ATPUSI) as Treasurer.*

Ekowiyanti *has been working in Santa Laurensia School for 20 years. She's interested in keeping up with the development of school libraries. Therefore, she has joined the Indonesia Association of School Librarians, ATPUSI. Now, she serves on the committee of the association as General Secretary.*