

Level of Awareness on the Utilization of Online Resources and Services among Selected Senior High School Students in Manila

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Abstract. This study evaluated the awareness of online library resources and services among Senior High School students in Manila, determined how frequently these resources are used, and developed an evidence-based manual to enhance their utilization. The researcher utilized a descriptive method and applied stratified random sampling among senior high school students in Grades 11 and 12. A survey questionnaire was created to assess students' awareness of their library's online resources and services, as well as to determine the frequency of their use of these resources. A total of 362 students participated in the study. The findings revealed that students had moderate awareness of the library's online services (3.19) and resources (3.48), but were only slightly aware of the online databases, including commercial databases (2.03) and Open Educational Resources (2.02). Additionally, students rarely used online library services (1.90) and accessed online resources only sometimes (2.57). However, they never used commercial databases (1.42) and Open Educational Resources (1.41). Results show that senior high students had moderate awareness of online library services and resources; however, they rarely used these services and resources. Additionally, there is a significant difference in understanding and frequency of online resource and service utilization when respondents are grouped by profile.

Keywords: Awareness; Online library resources; Online library services; Online research databases; Utilization of online resources.

1.0 Introduction

During the COVID-19 pandemic, students shifted to virtual classrooms, engaging fully in online learning, eliminating the need for physical attendance at academic institutions. Despite this shift, libraries continued to provide essential resources and services online to meet the research needs of long-distance users, innovatively catering to their needs. The establishment of these online library services further reinforced the findings of Malabanan et al. (2021), who concluded that there was a necessity for libraries to optimize the use of online materials and services during the pandemic.

During the 2021 pandemic, libraries participating in this research adapted by offering several new online library services for students. These library services included online document delivery, virtual chat services, and online library instructions. Lastly, these libraries also provide online resources for the students. These online resources included links to open-access resources and various research databases such as EBSCO and GALE.

According to Harisanty (2019), senior high school students demonstrated low utilization of library services and digital resources, as they primarily relied on magazines for information and perceived librarians as merely custodians of books. Lawrantine et al. (2024) further showed in their study that students lacked awareness of the variety of subscribed e-resources available at the University of Bameda, resulting in low usage. Mohammed Tukur and Kannan (2021) observed in their study that the majority of students at the Federal University of Agriculture, Makurdi, Benue State, were unaware of the available databases in their library, resulting in underutilization. They stated that there is a significant relationship between awareness and usage. Similarly, Manzo et al. (2020) emphasized a substantial correlation between students' understanding and their usage of library services. Their study observed that due to low awareness of electronic information resources in Nigerian Polytechnic Libraries, there was also a correspondingly low level of utilization.

Awareness played a key role in the utilization of online library resources and services. Wiche and Ogunbodede (2021) unveiled that students with a high level of understanding of various open educational resources utilized those resources more frequently. Similarly, Patricia and Sibanda (2021) concluded that high awareness, coupled with user-friendly electronic resources, led to frequent usage of those resources. Additionally, Kimanga and Namande (2021) further strengthen the correlation between being aware of electronic resources and their utilization. Their research revealed that students tended to use e-resources more when they were aware of them, in contrast to resources they had limited awareness of. Panhilason (2024) emphasized the link between user awareness and utilization, noting that as students become more informed about the availability of online resources and services, their engagement and utilization of these resources tend to increase.

Despite the introduction of numerous new services and resources by the participating libraries in this study, usage among senior high school students remained low. This suggests that the rapid transition to online platforms during the pandemic may have hindered libraries' ability to effectively communicate the availability of these digital services and resources to these students. While previous studies have examined the awareness and usage of online library services and resources among undergraduate and graduate students in various universities and colleges in the Philippines, very little attention has been given to students in Basic Education specifically to senior high school students as these students are at a pivotal stage where they must select an academic track aligned with their long-term educational and career goals and must have foundational skills in accessing and utilizing online library resources and services. The study aims to address this research gap by assessing the level of awareness of online resources and service utilization among selected senior high school students in Manila.

2.0 Methodology

2.1 Research Design

The researcher utilized the descriptive method in this investigation. This method was employed to evaluate the awareness level and frequency of use of online resources and services among the senior high school students in both private and public schools in Manila, S.Y. 2023-2024. This approach involved collecting detailed information about the students' awareness and how frequently the resources and services are being utilized. This approach enabled the study to deliver a thorough understanding of the present awareness level and usage without delving into the underlying reasons behind these patterns.

2.2 Participants and Sampling Technique

The participants in this study were Senior High School students from three (3) schools in Manila. The total population of the three schools combined was 3,969. Cochran's sample size formula was then applied to determine the appropriate sample size for each school, ensuring statistical validity. The study garnered a sample size of 362 students from grades 11 and 12, enrolled in the ABM, HUMSS, STEM, and TVL academic tracks. The researcher employed a stratified random sampling method to achieve a representative sample that reflected the diversity of the student body across different schools. The target population encompassed selected senior high school students currently enrolled in private and public schools within Manila for S.Y. 2023-2024. The researcher chose to focus on Grade 11 and 12 students (senior high school) due to the observed low utilization of online library resources and services in the three selected schools.

2.3 Research Instrument

The researcher utilized a self-developed questionnaire to assess the awareness level of senior high school students regarding their utilization of online library resources and services. The instrument was designed through

interviews with the school's head librarians.

To validate the research instrument, particularly the Likert scale used, several steps were undertaken to ensure its reliability and accuracy. First, the instrument was evaluated by five experts in the field, who provided critical feedback and suggestions for improvement. This expert evaluation helped refine the questions and ensure they were clear, relevant, and appropriately measured the intended constructs. Additionally, the researcher consulted with her statistical adviser to discuss the use of the Likert scale, ensuring that the scale was applied correctly and that the collected data would be suitable for statistical analysis. Lastly, a pilot study was conducted with a small sample of participants to assess the instrument's effectiveness in a real-world setting. The pilot study helped identify potential issues and make necessary adjustments before the full-scale study. These steps collectively ensured that the research instrument was both valid and reliable, providing a solid foundation for the study's findings.

2.4 Data Gathering Procedure

The researcher had requested permission from the Administration of the three(3) institutions involved in the study. After the Administration and Principals approved the study to be conducted on the institutions and students, the survey questionnaire (both online and physical versions) was administered to gather the necessary data needed by the researcher.

To facilitate distribution, the researcher also coordinated with the Academic Coordinators of the three institutions to dispense the questionnaire to the respective Senior high school classes. The researcher used both physical questionnaires and online questionnaires (via Google Forms) to gather the essential data.

A questionnaire link was first distributed to one of the schools via email by the Senior High School Faculty to their assigned online class. The researcher facilitated the survey via Google Sheets. The researcher was always notified via email whenever a student filled out the Questionnaire Form and could monitor the Spreadsheet created by the Google Form. The researcher observed that only a few respondents were answering the Google Forms and decided to distribute physical questionnaires to collect more responses. The researcher made visits to the designated institutions and executed one of the following actions for each: 1. Personally handed out the questionnaires to each class and ensured their confidentiality, 2. Delegated the task of questionnaire distribution to the Senior High School Librarian, and 3. Entrusted the Senior High School Coordinator with the distribution of the questionnaires. After collecting the necessary data, the results were tallied, tabulated, and submitted to the institutional statistician for statistical treatment of the study.

2.5 Data Analysis Procedure

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) program to collect and analyze survey information. The formula for computing the Mean was also employed in the study to determine the level of awareness and frequency of usage of online library resources and services among Senior High School students. Finally, the Kruskal-Wallis Test and the Mann-Whitney U-test were applied to determine significant differences in the level of awareness and frequency of usage according to the students' profiles.

2.6 Ethical Considerations

To ensure responsible research practices, the researcher obtained ethics clearance from the Research Ethics Committee of her graduate school before data collection for the study. Due to the majority of respondents being minors, the researcher prepared an informed assent form specifically for them.

3.0 Results and Discussion

3.1 Demographic Profile of the Respondents

Table 1 revealed that there were more Senior High School Students within the age range of 17 (40.88%) and 18 (34.53%). This was followed by those at the ages of 16 (17.68%), 19 (3.59%), and 20 (0.83%). On the other hand, some students were in the age range of 14, 15, and 24 (0.28%).

Table 1. *Frequency and Percentage Distribution of Respondents according to Age*

Age	Frequency	Percentage
14	1	0.28
15	1	0.28
16	64	17.68
17	148	40.88
18	125	34.53
19	13	3.59
20	3	0.83
24	1	0.28
Total	362	100.00

This is consistent with the report from the International Affairs Service of the Commission on Higher Education (CHED) in the Philippines, which indicates that senior high school students typically fall within the 16-to 18-year-old age range.

Table 2 reveals that males comprised the majority (85.08%) of the study, while females consisting the minority (14.92%).

Table 2. *Frequency and Percentage Distribution of Respondents according to Sex*

Sex	Frequency	Percentage
Female	108	64.92
Male	254	85.08
Total	362	100.00

Table 3 showed that Grade 12 students represented the majority (80.39%) of the study, while Grade 11 students represented the minority (69.61%).

Table 3. *Frequency and Percentage Distribution of Respondents according to Grade Level*

Grade Level	Frequency	Percentage
Grade 11	142	69.61
Grade 12	220	80.39
Total	362	100.00

Table 4 shows that most of the respondents were HUMMS and ABM students, with percentages of 65.75% and 64.36%, respectively. In contrast, the least number of respondents were STEM (63.12%) and TVL (56.77%) students.

Table 4. *Frequency and Percentage Distribution of Respondents according to Academic Strand*

Academic Strand	Frequency	Percentage
ABM	104	64.36
STEM	95	63.12
HUMMS	114	65.75
TVL	49	56.77
Total	362	100.00

Table 5 shows that the majority of respondents (99.03%) used keywords and the search bar when looking for information on search engines, (87.29%) used Boolean Logic Operators, and (84.81%) narrowed the time frame of their search results. However, (79.42%) of respondents did not use open and close parentheses to group search terms to get specific search results, (70.86%) did not use quotation marks to specify search term/s, and (65.19%) did not narrow the time frame of their search results.

Table 5. *Distribution of Respondents according to Navigating Skills on Search Engines*

Navigating Skills on Search Engines	Frequency			
	Yes	Percentage	No	Percentage
Use of keywords and search bar	355	99.03	7	50.97
Narrowing the time frame of my search results	252	84.81	110	65.19
Use of quotation marks to specify the Search Term/s	211	79.14	151	70.86
Use of Boolean Logic Operators (AND, OR, and NOT) to get precise results	270	87.29	92	62.71
Typing open and close parentheses () to group searchterms to get specific search results	149	70.58	213	79.42

This aligns with Kumar's (2020) study, in which students heavily relied on search engines whenever they needed to search for information online. Dahlen et al. (2020) also observed the information-seeking behavior of students. They concluded that only 24% students used Advanced Search when using ProQuest's Summon, indicating underuse. Nasir et al. (2024) highlighted that students often lack the necessary information literacy skills to effectively navigate and utilize advanced search tools.

Table 6 shows that the majority of SHS Students preferred to use mobile phones (65.75%) and their laptops (61.88%) when using online resources.

Table 6. Frequency and Percentage Distribution of Respondents' Preferred Device to Use Online Resources

Device	Frequency	Percentage
Desktop Computer	109	30.11
Laptop	224	61.88
Mobile Phone	238	65.75
Tablet	44	12.15

Note: There was no total since respondents could select any of the following options.

This supports the study by Bernabe et al. (2022), which observed that students used smartphones and laptops for online learning. Adlit et al. (2023) concluded that senior high school students perceive mobile phones as versatile tools that facilitate easy, fast, and convenient access to information.

3.2 Level of Awareness on Online Resources and Services

Table 7 displays the overall mean, which was 3.19, indicating that the students possessed a moderate level of awareness regarding the online services provided by their libraries. This was observed because all three libraries utilized well-known digital platforms, such as Facebook, to interact with and market the library's online services to young students.

Table 7. Students' Level of Awareness of Online Library Services

Online Library Services	Mean	Verbal Interpretation
Library Orientation	3.46	Moderately Aware
Email Services	3.38	Moderately Aware
Virtual Chat Services	2.75	Moderately Aware
Library Online Instructions	3.43	Moderately Aware
Online Document Delivery Services	3.06	Moderately Aware
Outdoor Library Book Pick & Drop Off	3.15	Moderately Aware
Referral Services	3.06	Moderately Aware
Current Awareness Services	2.98	Moderately Aware
Thesis and Dissertation Access	3.45	Moderately Aware
Overall Mean	3.19	Moderately Aware

Note: 1.00 – 1.50 (Not Aware), 1.51 – 2.50 (Slightly Aware), 2.51 – 3.50 (Moderately Aware), 3.51 – 4.50 (Very Aware), 4.51 – 5.00 (Extremely Aware)

This was supported by the study of Asid (2022), which claimed that awareness of available online library services can be enhanced by using social media sites such as Facebook, as library users widely use this platform. Chi (2022) noted that students responded positively to the library's presence on Facebook, recognizing the platform as a valuable channel for engaging with and becoming informed about available library resources and services.

Table 8 shows that students were slightly aware of the commercial databases provided by their libraries, with an overall mean of 2.03.

Table 8. Students' Level of Awareness of Commercial Databases

Commercial Databases	Mean	Verbal Interpretation
EBSCOhost	2.09	Slightly Aware
GALE	1.96	Slightly Aware
Overall Mean	2.03	Slightly Aware

Note: 1.00 – 1.50 (Not Aware), 1.51 – 2.50 (Slightly Aware), 2.51 – 3.50 (Moderately Aware), 3.51 – 4.50 (Very Aware), 4.51 – 5.00 (Extremely Aware)

The results are supported by the studies of Osinulu (2020) and Lawrantine et al. (2024) on students' awareness of the subscribed databases in their libraries. These studies revealed that students lacked understanding of the variety of subscribed e-resources available, resulting in low usage.

Table 9 indicates that students were slightly aware of the open educational resources provided by their libraries, with a mean score of 2.02.

Table 9. *Students' Level of Awareness of Open Educational Resources*

Open Educational Resources	Mean	Verbal Interpretation
STARBOOKS	1.98	Slightly Aware
Tekno-Aklatan	2.08	Slightly Aware
Project Gutenberg	2.00	Slightly Aware
ASEAN Digital Library	2.36	Slightly Aware
Hindawi Open Access Journal	1.87	Slightly Aware
Routledge Education	1.80	Slightly Aware
Over-all Mean	2.02	Slightly Aware

Note: 1.00 – 1.50 (Not Aware), 1.51 – 2.50 (Slightly Aware), 2.51 – 3.50 (Moderately Aware), 3.51 – 4.50 (Very Aware), 4.51 – 5.00 (Extremely Aware)

The findings were aligned with the studies of Igbinovia et al. (2022) and Obinyan et al. (2023) on students' awareness of open educational resources. These studies revealed that students have low awareness of the open educational resources provided by their libraries.

Table 10 indicates that among the various online library resources, E-Books had the highest mean score of 3.83. In contrast, E-Magazines had the lowest mean score, registering at 3.12. The table also indicated that students were very aware of specific online resources in their libraries, e-dictionaries and e-journals, with mean scores of 3.63 and 3.54, respectively. On the other hand, their awareness of e-newspapers, e-theses, and Dissertations was moderate, with mean scores of 3.46 and 3.32. Overall, students demonstrated moderate understanding of the online resources available in their libraries.

Table 10. *Students' Level of Awareness of Online Library Resources*

Online Library Resources	Mean	Verbal Interpretation
E-Books	3.83	Very Aware
E-Dictionaries	3.63	Very Aware
E-Journals	3.54	Very Aware
E-Newspaper	3.46	Moderately Aware
E-Theses and Dissertations	3.32	Moderately Aware
E-Magazines	3.12	Moderately Aware
Over-all Mean	3.48	Moderately Aware

Note: 1.00 – 1.50 (Not Aware), 1.51 – 2.50 (Slightly Aware), 2.51 – 3.50 (Moderately Aware), 3.51 – 4.50 (Very Aware), 4.51 – 5.00 (Extremely Aware)

These results were supported by the studies of Chanda (2021) and Ingole and Chavan (2023), who observed that library respondents were aware of their library's provision of digital materials.

Table 11 presents the Kruskal-Wallis test outcomes to examine the difference in the level of awareness of online library services and resources when grouped by students' age. It was observed that among the digital services and resources of the library, commercial databases and open educational resources yielded p-values of 0.001 and 0.023, respectively, both of which were less than 0.05. This suggested that there was a significant difference in the students' awareness level in the utilization of commercial databases and open educational resources. It was concluded that older students were more aware of the available online library materials.

Table 11. *Kruskal-Wallis Test: Difference in the Level of Awareness on Online Library Services and Resources when grouped according to Age*

Online Library Services and Resources	Age	Mean Rank	H-value	P-value	Decision	Remarks
Online Library Services	14	160.50	7.200	0.515	Failed to Reject H_0	Not significant
	15	55.50				
	16	170.25				
	17	175.85				
	18	181.91				
	19	218.81				
	20	162.67				
	24	336.00				
Commercial Databases	14	64.50	25.536	0.001	Reject H_0	Significant
	15	138.50				
	16	145.91				
	17	167.54				
	18	197.76				

	19	253.38				
	20	223.00				
	24	337.00				
Open Educational Resources	14	76.00	17.776	0.023	Reject H_0	Significant
	15	209.50				
	16	147.63				
	17	177.36				
	18	187.26				
	19	234.69				
	20	208.50				
	24	300.00				
Online Library Resources	14	219.50	6.642	0.576	Failed to Reject H_0	Not significant
	15	21.50				
	16	169.47				
	17	174.62				
	18	182.42				
	19	211.23				
	20	191.33				
	24	312.50				

*Significant if: p-value < 0.05

Table 12 presents the Mann-Whitney U Test results to examine the difference in the level of awareness of online library services and resources when grouped by sex. The tables show all p-values (0.120, 0.375, 0.522, and 0.246) of the online library services and resources were greater than the significance level of 0.05. This implied that there was no significant difference in the students' level of awareness of the online library services and resources when grouped according to sex. The results from this study demonstrate that the sex of students was not a factor in influencing their awareness of using online library services and resources.

Table 12. Mann-Whitney U Test: Difference in the Level of Awareness on Online Library Resources and Services when grouped according to Sex

Online Library Services and Resources	Respondent	Mean Rank	U-value	P-value	Decision	Remarks
Online Library Services	Female	168.41	14936.50	0.120	Failed to Reject H_0	Not significant
	Male	186.31				
Commercial Databases	Female	173.23	14233.00	0.375	Failed to Reject H_0	Not significant
	Male	183.54				
Open Educational Resources	Female	175.32	14011.00	0.522	Failed to Reject H_0	Not significant
	Male	182.66				
Online Library Resources	Female	170.86	14567.00	0.246	Failed to Reject H_0	Not significant
	Male	184.58				

*Significant if: p-value < 0.05

Table 13 presents the results of the Mann-Whitney U Test to examine the difference in the level of awareness of online library services and resources when grouped by grade level. Among the online library services and resources, only the commercial databases with a p-value of 0.010 had a p-value that was less than the significance level of 0.05. This implies that there was a significant difference in the students' level of awareness of commercial databases when grouped by grade level. This suggests that Grade 12 students were more aware of the commercial databases available in their library than Grade 11 students.

Table 13. Mann-Whitney U Test: Difference in the Level of Awareness on Online Library Resources and Services when grouped according to Grade Level

Online Library Resources and Services	Respondent	Mean Rank	U-value	P-value	Decision	Remarks
Online Library Services	Grade 11	184.43	15204.50	0.656	Failed to Reject H_0	Not significant
	Grade 12	179.61				
Commercial Databases	Grade 11	164.03	17959.00	0.010	Reject H_0	Significant
	Grade 12	192.00				
Open Educational Resources	Grade 11	172.57	16746.50	0.194	Failed to Reject H_0	Not significant
	Grade 12	186.47				
Online Library Resources	Grade 11	182.69	15308.50	0.801	Failed to Reject H_0	Not significant
	Grade 12	179.90				

*Significant if: p-value < 0.05

Table 14 presents the results of the Kruskal-Wallis test, which was performed to examine the differences in the level of awareness of online library services and resources when grouped by academic strand. It was observed that among the library resources and services, commercial databases, open educational resources, and online library resources obtained p-values of 0.007, 0.012, and 0.032, respectively, all of which were less than 0.05. This implies that there was a significant difference in the students' level of awareness in the utilization of these services and resources when grouped according to their academic strand. Upon analyzing the respective mean ranks, it was concluded that HUMSS students were more aware of the availability of Commercial Databases, Open Educational Resources, and Online Library Resources compared to students from other academic strands.

Table 14. *Kruskal-Wallis Test: Difference in the Level of Awareness on Online Library Resources and Services grouped according to Academic Strand*

Online Library Resources and Services	Academic Strand	Mean Rank	H-value	P-value	Decision	Remarks
Online Library Services	ABM	180.24	4.880	0.181	Failed to Reject H_0	Not significant
	STEM	167.79				
	HUMMS	197.27				
	TVL	174.07				
Commercial Databases	ABM	152.72	12.216	0.007	Reject H_0	Significant
	STEM	187.77				
	HUMMS	198.41				
	TVL	187.52				
Open Educational Resources	ABM	165.37	10.921	0.012	Reject H_0	Significant
	STEM	167.52				
	HUMMS	204.73				
	TVL	185.21				
Online Library Resources	ABM	187.19	8.781	0.032	Reject H_0	Significant
	STEM	157.93				
	HUMMS	198.47				
	TVL	172.3				

*Significant if: p-value < 0.05

3.3 Frequency of Utilization of Online Resources and Services

Table 15 showed that Library Orientation had the highest mean score at 2.15, while Outdoor Library Book Pick & Drop Off had the lowest mean score at 1.67. With an overall mean of 1.90, this showed that students rarely used the online library services of their libraries.

Table 15. *Students' Frequency of Utilization of Online Library Services*

Online Library Services	Mean	Verbal Interpretation
Library Orientation	2.15	Rarely
Thesis and Dissertation Access	2.07	Rarely
Email Services	2.03	Rarely
Library Online Instructions	1.96	Rarely
Current Awareness Services	1.96	Rarely
Online Document Delivery Services	1.79	Rarely
Virtual Chat Services	1.77	Rarely
Referral Services	1.74	Rarely
Outdoor Library Book Pick & Drop Off	1.67	Rarely
Over-all Mean	1.90	Rarely

Note: 1.00 – 1.50 (Never), 1.51 – 2.50 (Rarely), 2.51 – 3.50 (Sometimes), 3.51 – 4.50 (Often), 4.51 – 5.00 (Always)

The results of this study contradicted those of Al-Baridi (2021) and Palma et al. (2023), who observed that students regularly utilized the library services offered by their respective institutions.

Table 16 presents that students never used the commercial databases of their school, such as EBSCOhost and GALE, with an overall mean of 1.42.

Table 16. Students' Frequency of Utilization of Commercial Databases

Commercial Databases	Mean	Verbal Interpretation
EBSCOhost	1.44	Never
GALE	1.40	Never
Over-all Mean	1.42	Never

Note: 1.00 – 1.50 (Never), 1.51 – 2.50 (Rarely), 2.51 – 3.50 (Sometimes), 3.51 – 4.50 (Often), 4.51 – 5.00 (Always)

The findings validate the studies of Eireyi-Fidelis and Ivwighrehgweta (2022) and Udoh et al. (2023), which discovered that students did not utilize the available subscribed databases provided by their respective institutional libraries.

Table 17 showed that the ASEAN Digital Library had the highest mean score of 1.54, while the Hindawi Open Access Journal had the lowest mean score of 1.32. Overall, the students did not utilize the library's open educational resources. Therefore, the findings in this study indicated limited or no utilization of open educational resources among the students.

Table 17. Students' Frequency of Utilization of Open Educational Resources

Open Educational Resources	Mean	Verbal Interpretation
ASEAN Digital Library	1.54	Rarely
Tekno-Aklatan	1.46	Never
Project Gutenberg	1.40	Never
STARBOOKS	1.39	Never
Routledge Education	1.35	Never
Hindawi Open Access Journal	1.32	Never
Over-all Mean	1.41	Never

Note: 1.00 – 1.50 (Never), 1.51 – 2.50 (Rarely), 2.51 – 3.50 (Sometimes), 3.51 – 4.50 (Often), 4.51 – 5.00 (Always)

The results align with the study of Christoforidou & Georgiadou (2022), which concluded that students lacked awareness of open educational resources, resulting in minimal usage in their academic work. Similarly, Raphael et al. (2024) reported that, although students demonstrated a high level of awareness of open educational resources, their actual utilization remained low.

Table 18 shows that E-Books had the highest mean score at 2.95, while E-Magazines had the lowest mean score at 2.16. The results indicate that students occasionally used e-books, e-dictionaries, and e-journals, as evidenced by their mean scores of 2.95, 2.83, and 2.64, respectively. On the other hand, e-newspapers, e-theses and dissertations, and e-magazines were used rarely, with mean scores of 2.50, 2.33, and 2.16, respectively. The results also showed that with an overall mean of 2.57, the students utilized online library resources sometimes.

Table 18. Students' Frequency of Utilization of Online Library Resources

Online Library Resources	Mean	Verbal Interpretation
E-Books	2.95	Sometimes
E-Dictionaries	2.83	Sometimes
E-Journals	2.64	Sometimes
E-Newspaper	2.50	Rarely
E-Theses and Dissertations	2.33	Rarely
E-Magazines	2.16	Rarely
Over-all Mean	2.57	Sometimes

Note: 1.00 – 1.50 (Never), 1.51 – 2.50 (Rarely), 2.51 – 3.50 (Sometimes), 3.51 – 4.50 (Often), 4.51 – 5.00 (Always)

This contrasts with Pandey's (2021) study, which observed that library users utilized e-resources daily, with a preference for e-journals (4.56%) and e-theses (28.30%) as the most favored electronic resources in their library, while e-books (31.13%) were the least preferred. Similarly, Ruzegwa and Msonde (2021) observed in their study that students utilized e-resources every week.

Table 19 presents the Kruskal-Wallis test results, examining the differences in the frequency of online library service and resource use when grouped by age. It can be observed that among the services and resources in the library, commercial databases and open educational resources yielded p-values of 0.000 and 0.004, respectively, both of which are less than 0.05. This implies that there was a significant difference in the students' frequency of

use of commercial databases and open educational resources. Upon analyzing the respective mean ranks, the results indicate that older senior high school students were more likely to utilize these online resources frequently.

Table 19. *Kruskal-Wallis Test: Difference in the Frequency of Use on Online Library Resources and Services when grouped according to Age*

Online Library Services and Resources	Age	Mean Rank	H-value	P-value	Decision	Remarks
Online Library Services	14	229.50	10.529	0.230	Failed to Reject H_0	Not significant
	15	78.00				
	16	164.01				
	17	180.95				
	18	181.15				
	19	199.27				
	20	78.00				
Commercial Databases	24	319.00	28.499	0.000	Reject H_0	Significant
	14	117.50				
	15	117.50				
	16	142.46				
	17	173.58				
	18	190.11				
	19	251.50				
Open Educational Resources	20	186.33	22.652	0.004	Reject H_0	Significant
	24	336.50				
	14	127.50				
	15	127.50				
	16	150.66				
	17	179.20				
	18	183.09				
Online Library Resources	19	239.54	10.519	0.230	Failed to Reject H_0	Not significant
	20	199.00				
	24	353.00				
	14	132.50				
	15	27.00				
	16	157.93				
	17	178.12				
	18	183.80				
	19	213.92				
	20	216.83				
	24	333.00				

*Significant if: p-value < 0.05

Table 20 presents the results of the Mann-Whitney U Test, performed to assess the difference in the frequency of online library service and resource use when grouped by sex. As shown in the table, all p-values (0.826, 0.273, 0.175, and 0.102) of the online library services and resources were greater than the significance level of 0.05. This implies that there was no significant difference in the students' frequency of use of online library services and resources when grouped according to sex. This meant that sex had nothing to do with the students' frequent use of library services and resources in the online platform. The analysis in this study validated that a student's sex could not affect their frequent usage of library services and resources in the online platform.

Table 20. *Mann-Whitney U Test: Difference in the Frequency of Use on Online Library Resources and Services when grouped according to Sex*

Online Library Services and Resources	Respondent	Mean Rank	U-value	P-value	Decision	Remarks
Online Library Services	Female	182.22	13.279.50	0.826	Failed to Reject H_0	Not significant
	Male	179.78				
Commercial Databases	Female	187.27	12532.50	0.273	Failed to Reject H_0	Not significant
	Male	176.23				
Open Educational Resources	Female	189.66	12491.50	0.175	Failed to Reject H_0	Not significant
	Male	176.68				
Online Library Resources	Female	166.90	14904.00	0.102	Failed to Reject H_0	Not significant
	Male	186.18				

*Significant if: p-value < 0.05

Table 21 presents the Mann-Whitney U Test results on the difference in the frequency of online library service and resource use when grouped by grade level. As shown in the table, all p-values (0.522, 0.381, 0.727, and 0.061) of the online library services and resources were greater than the significance level of 0.05. This implies that there was no significant difference in the frequency of use of online library services and resources when grouped according to grade level. This means that a student's grade level had no bearing on how frequently they used the online library services and resources.

Table 21. Mann-Whitney U Test: Difference in the Frequency of Use on Online Library Resources and Services when grouped according to Grade Level

Online Library Services and Resources	Respondent	Mean Rank	U-value	P-value	Decision	Remarks
Online Library Services	Grade 11	185.01	14979.00	0.522	Failed to Reject H_0	Not significant
	Grade 12	178.40				
Commercial Databases	Grade 11	174.99	16.076.00	0.381	Failed to Reject H_0	Not significant
	Grade 12	183.24				
Open Educational Resources	Grade 11	179.10	15819.00	0.727	Failed to Reject H_0	Not significant
	Grade 12	182.23				
Online Library Resources	Grade 11	168.45	17331.00	0.061	Failed to Reject H_0	Not significant
	Grade 12	189.14				

*Significant if: p-value < 0.05

Table 22 presents the results of the Kruskal-Wallis Test, which was conducted to examine the differences in the frequency of online library service and resource usage across various academic strands. It was observed that among the library resources and services, commercial databases and open educational resources yielded p-values of 0.004 and 0.000, respectively, both of which were less than 0.05.

Table 22. Mann-Whitney U Test: Difference in the Frequency of Use on Online Library Resources and Services when grouped according to Grade Level

Online Library Services and Resources	Academic Strand	Mean Rank	H-value	P-value	Decision	Remarks
Online Library Services	ABM	170.56	5.304	0.151	Failed to Reject H_0	Not significant
	STEM	172.04				
	HUMMS	197.16				
	TVL	182.96				
Commercial Databases	ABM	155.76	13.357	0.004	Reject H_0	Significant
	STEM	179.89				
	HUMMS	193.20				
	TVL	201.17				
Open Educational Resources	ABM	165.99	22.833	0.000	Reject H_0	Significant
	STEM	159.52				
	HUMMS	208.50				
	TVL	190.74				
Online Library Resources	ABM	170.38	5.844	0.119	Failed to Reject H_0	Not significant
	STEM	168.35				
	HUMMS	197.16				
	TVL	190.69				

*Significant if: p-value < 0.05

Consequently, there was a significant difference in the students' frequency of use of online library services and resources when grouped according to their academic strand. Upon analyzing the respective mean ranks, it was concluded that TVL students used commercial databases more frequently, while HUMSS students used open educational resources more regularly.

4.0 Conclusion

Most respondents were Grade 12 senior high school students, predominantly male, within the age range of 16 to 18 years. Students had moderate awareness of online library services and resources; however, they rarely used these services and resources. There is a significant difference in the understanding of online resources and services when respondents are grouped by profile. Older students were more aware of available online library materials, particularly commercial databases and open educational resources. Grade 12 students demonstrated a greater awareness of commercial databases, while HUMSS students showed a higher understanding of e-resources.

Similarly, there is a significant difference in the frequency of utilization when respondents are grouped by profile. Older senior high school students were more inclined to use these resources frequently. TVL students used commercial databases more often, while HUMSS students used open educational resources more often.

To further increase awareness of the library's online resources and services, it is recommended that the library enhance its promotion and develop an online literacy manual. This manual should guide students in navigating search interfaces, utilizing commercial databases and open-access resources, and applying advanced search techniques, including Boolean logic. Integrating this manual into research workshops can help senior high school students confidently access digital library materials.

Future research may explore the effectiveness of such interventions in improving students' digital literacy, online library resource usage, and satisfaction, particularly across different academic tracks and grade levels in various cities or regions of the Philippines.

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The paper has only one author.

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7.0 Conflict of Interest

The author declares that she has no conflicts of interest.

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