

Senior High School (SHS) Information Literacy (IL) Skills Assessment Using the Tool for Real-time Assessment of Information Literacy Skills (TRAILS)

Candy May N. Schijf

Polytechnic University of the Philippines / De La Salle University
candy.schijf@dlsu.edu.ph

ABSTRACT

The study aimed to assess the information literacy (IL) skills of Grade 12 public Senior High School (SHS) students of seven (7) schools in the City of Santa Rosa, Laguna, during the first semester of SY 2018-2019. Assessment 1 of the Tool for Real-time Assessment of Information Literacy Skills (TRAILS) was answered by 313 students chosen through stratified random sampling using Cochran's formula with a 0.05 margin of error. Utilizing the quantitative descriptive research design, five (5) IL skills categories under TRAILS were explored and given qualitative interpretation of Poor to Excellent. Statistical tools include frequency counts, median, mode, Shapiro-Wilk test, and Kruskal-Wallis H-Test. The study revealed that out of the five (5) IL skills categories, the students' strength is evident under three (3) categories, and the combined scores of the students were at the lowest in one category – identifying potential sources. When grouped according to track, the Science, Technology, Engineering, and Mathematics (STEM) Strand performed well with three categories having a qualitative analysis of Poor to Excellent. Accountancy, Business, and Management (ABM) Strand performed Poor to Good in four (4) IL Categories except for one. General Academic Strand (GAS) performed Poor to Excellent in two (2) categories and Poor to Average results under two (2) categories. Technical-Vocational-Livelihood (TVL) Strand performed Poor to Excellent under one category; Poor to Average under two (2) categories, and, Poor to Good also under two (2) categories. There is a significant difference in the IL skills of the respondents when they are grouped according to track by IL category. The null hypothesis was rejected with a p-value of 0.000. It is concluded that the IL skills level of Grade 12 SHS students in the City of Santa Rosa, Laguna, is far from ideal. However, this must be viewed with caution for several reasons: the absence of a Philippine IL skills benchmark; the overall IL skills result was not correlated in any way with the absence or presence of IL literacy programs in the respective schools; the overall IL skills result was not also correlated with any IL skills training in junior high school or any other level before SHS; and no other method (e.g., interview, focus group discussion) was employed to confirm the assessment results. Building on the results and conclusions, the researcher proposed an IL program for the public SHSs of the City of Santa Rosa, Laguna.

Keywords: *information literacy, information literacy skills; tool for real-time assessment of information literacy skills; trails; senior high school students; public senior high schools*

Introduction

In a society where information is readily available with a few taps of the fingertips, discernment of information quality dramatically suffers. The present generation views the information search process as instant access using ubiquitous devices. The availability of multiple information sources makes them believe they can answer any query by merely typing on a browser's search box and reading the first few sentences of the first items on their search result. According to Taylor (2012), this prevailing behavior of the millennial generation, compounded with persistent distractions from socializing in a connected world, creates a difficulty in valid and discerning information from invalid information — a view in the education field known as part of incomplete cognitive skills. In line with this millennial generation's view of the information search process, Gross and Latham (2009) reported that students perceive finding information as a product, not a process. To quote one of their subjects, "The computer does all the work for you." Further, their study indicated that students did not perceive finding information as complex or requiring any particular skill set.

The aforementioned is alarming to the information science profession because the present generation no longer recognizes that the information search process is governed by a specific skill set: information literacy (IL). The student's inability to adhere to a methodological research process, relying on Google and Wikipedia, concerns educators. They firmly believe it is essential for students to possess IL skills (Averill & Lewis, 2013).

The Library and Information Science (LIS) profession is a particular field concerned with this issue. On a larger scale, United Nations Educational, Scientific and Cultural Organization (UNESCO) Intergovernmental Council for the Information for All Programme's (IFAP) priority areas involve raising awareness of the importance of IL. Through the Alexandria Proclamation of 2005, UNESCO recognizes IL as "a basic human right in the digital world" as it empowers individuals "in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals." Moreover, Catts and Lau (2008), the proponents of UNESCO's conceptual framework on IL indicators, contend the following: In a digital world, people require new skills and training to participate (Breivik, 2005). The digital divide is much more than a 'technology access' divide; without the skills to use the technologies, an even greater divide emerges — the IL divide. Interestingly this is not a "north-south, developed-developing" issue; it applies to all countries and is more a reflection of the extent to which education systems are — or are not — keeping up with the new information societies (Catts & Lau, 2008, p.5).

UNESCO aims to measure global IL levels and to involve all nation members. The Philippines is far from recognizing IL as an essential driver for socio-political and economic progress, especially with the rise of the Knowledge Society. According to the UNESCO World Report in 2005, a knowledge society is the capability to identify, produce, process, transform, disseminate, and use the information to build and apply the knowledge that may be used to improve the human condition. It can be achieved through empowering social vision by incorporating plurality, inclusion, solidarity, and participation. Continuous learning is a general characteristic of the knowledge society, and each individual's capacity to learn throughout life is crucial (UNESCO, 2005). In 2016, the Asian Institute of Journalism and Communication (AIJC), citing the 2013 Functional Literacy, Education and Mass Media Survey (Philippine Statistics Authority, 2013),

reported that Filipinos have exceptionally high basic and functional literacy. Filipinos 10 years old and over (96.5%) were literate, and nine out of ten Filipinos (90.3%) were functionally literate. With these figures, the Philippines has already achieved universal literacy. Still, it is crucial to remember that basic or functional literacy is insufficient to have an advantage in modern times. Libraries come into play when any nation pursues to achieve IL. The UNESCO Information For All Programme (IFAP) Council recommends that special attention be given to supporting information mediators or infomediaries, such as teachers, librarians, and archivists. These information professionals have a multiplying effect in achieving information-literate societies.

In the higher education library setting, IL is a set of abilities requiring students to recognize when information is needed and can locate, evaluate, and use the necessary information effectively. Developing IL abilities is essential for students to evaluate sources for accuracy, relevance, credibility, reliability, and bias and select, analyze, and employ primary and secondary sources to write and present evidence-based arguments (Association of College and Research Libraries, 2006). For primary and secondary schools, a simple and appropriate definition of IL is provided by the American Library Association (ALA) (2014) as the set of skills needed to find, retrieve, analyze, and use information. With this simple definition, it is essential to emphasize that IL comprises four (4) skills that lead a learner to understand that consuming information is not instant, as the technology-driven society made it appear, but a process of value judgment.

The provision of quality information is one of the pillars of librarianship. Information professionals select, locate, collect, preserve, and make available quality information in all possible formats. With a quality collection, libraries aspire to make this known to the community and teach them to use information sources productively. Library orientation and instruction are foundational strategies necessary to engage learners with the library's resources and services. School libraries have explicit or implicit IL programs from these basic strategies. Specific IL programs include carefully planned activities and often involve classroom teachers integrating IL concepts into their lessons. The implicit program generally encompasses the day-to-day guidance on library use and the information search process provided by librarians and other library personnel to the students.

Hence, school libraries, librarians, and classroom teachers' involvement is central to honing information-literate learners early in their education journey. Like any endeavor, assessment of goals and the current status is imperative. However, according to Neely (2006), Radcliff et al. (2007), and Walsh (2009) (in Rosman et al., 2015), the assessment of IL is still in its infancy despite some encouraging efforts. Researchers have not yet determined how this multifaceted concept should be measured. Efforts in assessing IL vary in their conceptions and three (3) methods are utilized: achievement tests, information search tasks, and self-assessments. These are employed independently.

In the Philippines, it has only been a decade since IL, and consequently, its assessment has become one of the research agendas of the LIS profession. A study by Domingo, et al. (2017) determined the extent of the research in IL competencies among the theses submitted to the University of the Philippines School of Library and Information Science (UP SLIS), covering the period from 2002 to 2016. Through meta-analysis, data were collected from seven (7) undergraduate and two (2) graduate theses. Counter-checking the theses included in this study, most surveyed schools are in Quezon City, first were public secondary schools (C=6); second were private secondary schools (C=3); and third, two studies surveyed students from the University of

the Philippines Diliman. Two studies also involved students from the University of the Philippines Los Baños (UPLB). One study involved students from a private secondary high school in Benguet, and one involved a public secondary high school from Central Luzon.

Chaining further into the study done by Domingo, et al. (2017), the researcher investigated the theses on IL assessment submitted to the Polytechnic University of the Philippines (PUP) by searching the PUP Ninoy Aquino Library and Learning Resources Center (NALLRC) Online Public Access Catalog (OPAC). Due to this limitation, the researcher could only search for ten theses covering the period from 2009-2018 related to the current study. Most studies were done in the National Capital Region (NCR). Three (3) surveyed students and teachers from PUP (SHS students, Tertiary Students, and SHS teachers). Two (2) studies on IL assessment were also done in two (2) private tertiary schools in Las Pinas. In Tanay, Rizal, one study concentrated on assessing selected public secondary schools, and one focused on evaluating the IL skills of selected private senior high schools.

The original contention of the researcher is that there is a dearth of IL studies done on public schools. Still, as discovered, many studies on public secondary schools were already done by UP SLIS and PUP researchers. It is noteworthy that only a few studies have been done to assess the IL skills of SHS students, especially in the province of Laguna, specifically in the City of Santa Rosa. This current study seeks to evaluate the IL skills of the SHS students of the seven (7) identified schools that offer the new curriculum in the City of Santa Rosa.

The K-12 program in the Philippines started during the school year (SY) 2012-2013, and one of the significant achievements of the program is the inclusion of Media and Information Literacy (MIL) education in the SHS curriculum. However, since MIL is still relatively new, especially in IL, the importance and development of the curriculum still need to be assessed as to how this subject can be effectively taught in the Philippines' SHS (Bautista, 2021), especially in public schools.

This paper aimed to contribute to this LIS area and assess the IL skills of Grade 12 public SHS students in the City of Santa Rosa, Laguna, using an achievement test, specifically the Tools for Real-Time Assessment of Information Literacy Skills (TRAILS). TRAILS is a product of Kent State University Libraries, launched in 2006 and was initially funded by the Institute for Library and Information Literacy Education (ILILE), an initiative of the Institute of Museum and Library Services (IMLS) and the US Department of Education. ILILE, IMLS, the US Department of Education, LSTA (Library Services & Technology Act Program), the Martha Holden Jennings Foundation, and Kent State University Libraries supported the assessment (Miller, 2015). TRAILS was unfortunately discontinued in May 2019. From its inception in 2004 until 2019, almost 31,000 teachers and librarians administered the assessments to nearly 2.5 million students all over the world. Evolution in information-seeking behavior and information resources necessitated a regular review of IL learning objectives and the appropriateness of items. Budget and staffing pressures led to the decision by Kent State to discontinue TRAILS as an online tool. Fortunately, Carrick Enterprises offered to host TRAILS content, which led to the creation of the new TRAILS-Archive site. It is an open educational resource (OER) where librarians and other information professionals can use all of the TRAILS assessments as PDF files and a searchable database of all TRAILS item banks. TRAILS archive is covered under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (Radcliff, 2019).

The TRAILS Archive (trails-archive.org) uses a searchable database of all the TRAILS items with results. The item bank facilitates the reuse of content in other applications as desired.

Possible database users can use the following parameters to search: grade level, TRAILS category, learning objective, and item question. The assessment for Grade 12 students comprises a 30-item questionnaire covering five (5) categories of IL: develop a topic, identify potential sources, develop, use, and revise search strategies, evaluate sources and information, and recognize how to use information responsibly, ethically, and legally. These items were carefully formulated, with established validity and reliability. They were based on the American Association of School Librarians (AASL) Standards for the 21st Century Learner and the United States Common Core State Standards (CCSS). Although these two bases of assessment are American, IL indicators and parameters apply to any learning outcomes assessment worldwide.

Moreover, TRAILS is a free, easy-to-use, data-driven, low-stakes, standards-based formative assessment that results in quantifiable evidence of students' knowledge. It also features the availability of pre- and post-tests for assessing curricular interventions (Miller, 2016). Since it is a limited-response test, it can be scored objectively and reliably. Despite the assessment tool's advantages, no tool is without a flaw. The recurring critique on TRAILS is its limited test scope; hence, it does not measure all aspects of IL.

Furthermore, since it is a fixed-choice or multiple-choice test, while reliable, it cannot measure the integrated use of higher-order skills – the ultimate goal of IL. The type of assessment employed using TRAILS is a valuable source of baseline data to counter this criticism. It can effectively augment other IL assessment methods such as task-based or performance-based and self-assessment tests. Students taking TRAILS will also be prevented from faking through deliberate over-reporting of abilities.

While other assessment studies in the Philippines used the TRAILS questionnaire as a guide in formulating their tool, this study is only the second assessment in the country that ultimately adopted the TRAILS tool. The maiden use of the tool was by Schijf (2015), involving Grade 9 students of the De La Salle University Integrated School in Biñan City, Laguna. This study aimed to widen the geographic scope of the respondents and administer the assessment in the public school setting. Thus, this is the first comprehensive study on assessing the IL skills of public SHS students using the TRAILS framework in the country. Importantly, this study pursued to gauge the current IL skill level of the respondents and identify the relationship of the IL skills presented in the TRAILS IL assessment framework to influence the current IL teaching activities in public schools. With the current landscape of how information is disseminated in the Philippines in the tri-media (TV, Radio, and Newspaper) and most especially in social media platforms, the researcher deemed it necessary to touch base with how the younger generation consumes information. The assessment of their IL will gauge how they know when and why they need information, where to find it, and how to evaluate, use, and communicate it ethically and help in the attainment of fighting the spread of fake news and turning them into a more information literate member of the society.

Research Objectives

The study aimed to assess the IL skills of Grade 12 public Senior High School (SHS) students of seven (7) schools in the City of Santa Rosa, Laguna, during the first semester of SY 2018-2019.

Research Problems

1. How will the Grade 12 SHS students perform in the following IL skills categories:
 - 1.1 develop topic;
 - 1.2 identify potential sources;
 - 1.3 develop, use, and revise search strategies;
 - 1.4 evaluate sources and information; and
 - 1.5 recognize how to use information responsibly, ethically, and legally?
2. What is the IL skills profile of the SHS schools in Santa Rosa City in terms of track offerings?
3. Is there a significant difference in the IL of the respondents when they are grouped according to track by IL category?

Theoretical Framework

This study uses two (2) related theoretical framework models: the AASL's Standards for the 21st Century Learner and the ACRL Model.

Primarily, this study is anchored on the standard set forth by one of the American Libraries Association's divisions, the AASL's Standards for the 21st Century Learner. This standard aims to provide a 'vision for teaching and learning to guide and beckon school librarians to develop into education leaders by shaping the library program and students' learning in the school.' Its central belief is that learners use skills, resources, and tools to accomplish four (4) fundamental objectives: to inquire, think critically, and gain knowledge; to conclude, make informed decisions, apply knowledge to new situations, and create new knowledge; to share knowledge and participate ethically and productively as members of our democratic society; to pursue personal and aesthetic growth. Each of the objectives constitutes four (4) elements, i.e., skills, dispositions in action, responsibilities, and self-assessment strategies for the learners. Under each component are benchmarks that indicate the fulfillment of expectations (Schijf, 2015). The IL skills categories of TRAILS: develop a topic, identify potential sources, develop, use, and revise search strategies, evaluate sources and information, and recognize how to use information responsibly, ethically, and legally. These categories were based on the AASL's Standards for the 21st Century Learner and the United States CCSS. Developing a topic refers to the ability to develop questions to clarify and focus topic. Identifying potential sources refers to the ability to understand that information comes from various forms: textual, visual, audio, or data. Developing, using, and revising search strategies is the ability to know how to use the features of an information source to retrieve the information needed, i.e., index and table of contents. Evaluating sources and information is the ability to be able to determine the currency, relevance, authority, accuracy, and purpose of information or information sources. Use information responsibly, ethically, and legally refers to the ability to understand the concepts of intellectual property (especially copyright, fair use, and plagiarism) and intellectual freedom.

The ACRL model asserts that IL comprises five main areas: knowledge, access, assessment, use, and legal ethics (2007). These areas focus on speaking skills: relay with others about the need for information, the ability to develop a research question, the ability to identify key concepts, and the realization that information combined with original thinking leads to new information

(Naval, 2018).

The standards above and the model are widely utilized as diagnosis and assessment tools by school and pre-college libraries. Both frameworks combine school and academic library dimensions, sharing a homogenous platform for assessment (Burns et al., 2019). Thus, it warrants appropriateness and substantiality that the standard and model should serve as the framework of this study as they provide an inclusive coverage addressing all component skills for IL assessment.

Literature Review

The literature and studies reviewed revealed that assessment of IL skills is vital because IL skills positively contribute to students' overall learning experience. Although the reviewed literature shows that there has yet to be a consensus on the best method for assessing IL skills and a unified definition of IL that encompasses all approaches and viewpoints. This affirms that the concept of IL assessment is still in its infancy.

Different methods were employed in the assessment of IL skills. In the studies reviewed, assessment tools and methodologies include researcher-made questionnaires (Amusan & Lawal, 2020; Gyesi & Ohene, 2020; Kovalik et al., 2013; Reddy et al., 2021; Sunaga, 2017), panel interviews among professors, librarians, and students (Averill & Lewis, 2013), participant-observation, documentation, and in-depth interviews (Ishkak et al., 2021), semi-structured and professional interviews (Ngo et al., 2019).

Only a few studies have adopted questions from globally-tested and standardized assessments. Primarily using the iCompetent assessment model, Majid et al. (2020) picked questions from the Research Readiness Self-Assessment (RSSA), Standardized Assessment of Information Literacy Skills (SAILS) Project, and TRAILS. Ngo et al. (2019) used the AASL Standards, while ACRL Standards inspired the assessment framework of Western State Colorado University (Sheret & Steele, 2013). Meanwhile, organic IL models were used as instructional and assessment frameworks in Japan and France, namely the Brevet Informatique et Internet (B2i) and Information Moral Teaching (IMT) models (Sunaga, 2019).

IL assessment revealed more than the IL skills of the students but also gave a broader perspective on IL in general. Both positive and negative dimensions were expounded. Studies found staffing challenges, IL integration in the curriculum, collaboration among teachers, and assessment of students (Diekema et al., 2019). IL programs affect students' academic performance (Angell & Tewell, 2013).

This current study assesses the IL skills of SHS students in Santa Rosa City, Laguna, covering the SY 2018-2019; thus, the reviewed literature is IL assessment studies administered to Primary and Secondary School students collated from different parts of the world. Like the current study that utilized the TRAILS assessment tool for Grade 12 students, multiple-choice or fixed-choice testing pervades the available studies on IL studies.

Compared to the current study, which was only limited to a specific city in the Philippines, the studies of Foo et al. (2014, 2017) involved a large-scale survey in Singapore of secondary schools (13-16 years old) students and Grade 5 (11 years old) students respectively. The respondents of both studies are quite different from the respondents of the current research, but both aim to assess the IL skills to check how the IL instruction can be revised and improved.

In the Philippines, the studies of Evangelista (2018) and Dela Cruz (2014, 2016), unlike the

current study, only concentrated on analyzing the effectiveness of an existing IL program in two private primary schools in Marikina and Quezon City. Evangelista assessed the skills of Grade 1-6 students, while Dela Cruz limited her assessment to Grade 5 students only. Like the studies of Evangelista and Dela Cruz, the study of Laluces (2016) also involved the assessment of the IL skills of the students and the IL instruction of six (6) private schools in Quezon City. All the results of the four studies mentioned proved that the IL programs/instruction being implemented in the schools surveyed have a significant impact on the student's test scores, which will impact the students becoming independent users of information. Like the current study, Naval (2018) respondents are also Grade 12 students. While Naval surveyed five (5) private schools in Taytay, Rizal, the current study's respondents are students from seven (7) public SHS schools in Santa Rosa City, Laguna. Most of the respondents in Naval's study are from the ABM Strand, while in this current study, GAS. Common to all the studies in the reviewed literature in the Philippines is that all are limited to private schools.

Gender has also been believed to influence information technology (IT) skills and usage of computer resources (Chu, 2012, p.6). The current study did not include the comparison of IL skills per gender, several of the studies reviewed compared the IL skill level between female and male students: Foo et al. (2017); Naval (2018); Ngo et al. (2019); and, Chu (2012). The majority of the results show that females outperform their male counterparts.

The nobility of TRAILS as an IL assessment tool in primary school, secondary school, and senior high schools was affirmed by Kovalik et al. (2012); Owen (2010); Cooper-Martin (2010); Baji and Bigdeline (2016); Ngo et al. (2019); Chu (2012); and Schijf (2015). Although the overall results of their studies vary from one IL category to another, they were able to establish that the TRAILS data provide IL baseline information that can be checked against existing library IL programs and are suitable bases for integrating and enhancing IL in the curriculum. Most of the researchers, as library practitioners, believed that venturing into IL skills assessment using TRAILS was a way for them to provide evidence-based data on the importance of the school library in achieving learning outcomes.

Research Design

Utilizing the quantitative descriptive research design, five (5) IL skills categories under Tool for Real-time Assessment of Information Literacy Skills (TRAILS) were explored and given qualitative interpretation of Poor to Excellent. Assessment 1 of the TRAILS-12 was answered by 313 students chosen through stratified random sampling using Cochran's formula with a 0.05 margin of error. Data were collected from the first semester of the SY 2018-2019. The gathered sample was tested for normality using the Shapiro-Wilk test, and the resulting p-value was 0.000, which means the distribution is not normal. Since the data were not normally distributed, the mean was not applicable to locate the central tendency. Instead, the mode and the median were employed to find the central location, while the spread was measured using the range and the quartile deviation. The data initially processed by the TRAILS system was again processed in Microsoft Excel and grouped by track. The grouped data were then tested for the significant difference in the respondents' IL when grouped according to track by IL category. To determine the significant difference, the Kruskal-Wallis H-Test was applied.

Population, Sample Size, and Sampling Technique

The participants of this study consisted of 313 SHS Grade 12 public SHS students enrolled during the first semester of SY 2018-2019 in the City of Santa Rosa, Laguna. Table 1 shows the sampling distribution of the number of respondents from the seven (7) DepEd-funded and operated schools in Santa Rosa City. School D has the highest number of respondents with 81, while the school where the lowest number of respondents is School C. Most of these schools offer the Technical-Vocational-Livelihood (TVL) track. Information on the SHS population of these seven schools for the academic year (AY) 2018-2019 was requested from the Division Schools-Superintendent of the City of Santa Rosa, Laguna. The sample population of each school is computed using stratified random sampling using Cochran's formula with a 0.05 margin of error. Table 1 shows the population of the study. The calculated sample size using Cochran's Method is $n=299$. However, the author was able to retrieve 313 completely answered questionnaires.

Table 1. *The Population of the Study*

School/ Respondents	Track	Population (N)	Sample (n)	Number of Actual Respondents
School A	TVL	156	35	38
School B	TVL	199	44	46
School C	ABM	120	27	27
School D	GAS	352	80	81
School E	STEM	205	45	48
School F	TVL	124	27	29
School G	GAS	194	43	44
Total		1350	299	313

Research Instrument

This study adapted the TRAILS Grade 12 General Assessment 1. It is a standardized and widely used tool in assessing the IL skills of students in different grade levels in the United States and was also adapted by over thirty (30) countries. TRAILS Grade 12 assessment is comprised of two (2) general assessments. Each general assessment consists of thirty (30) multiple-choice items covering the five (5) categories of IL based on the AASL's Standards for the 21st-Century Learner and those from the CCSS Initiative that most states have adopted in the US. Even though these are the bases for the assessment, TRAILS was designed to be easily adapted for use at other institutions, as the literature reviewed attests. TRAILS will assess the IL skills of the students in five (5) categories: develop a topic, identify potential sources, develop, use, and revise search strategies, evaluate sources and information, and recognize how to use information responsibly, ethically, and legally. The tool was not tested for reliability for this reason. It is licensed openly via Creative Commons, and the proponent's permission is granted to the author for its use. For this study, qualitative interpretation of the scores obtained by the Grade 12 students in General Assessment 1 was guided by the following IL skill level:

Table 2. *IL Skills Level Interpretation*

Range of Student Score in %	Qualitative Interpretation
0 – 20	Poor
21 – 40	Fair
41 – 60	Average
61 – 80	Good
81 – 100	Excellent

Data Gathering Procedure

To follow the ethical validity and integrity of the data to be gathered, protocols were followed, considering the respondents are SHS students and are of minor age. Correspondence was sent personally by the researcher to the Division Schools Superintendent of the City of Santa Rosa, Laguna. The letter cited the intention of collecting data from the students. Endorsement from the university and a copy of the TRAILS-12 Assessment 1 questionnaire complement the letter for the superintendent's perusal. After due approval, the researcher coordinated with the principals and SHS faculty coordinators of the responding schools and arranged schedules for data collection. In those phases, orientation sessions run along with the students. The orientation tackled the nature and purpose of the study, the responsibilities of the parties involved in the data collection, the explanation of the questionnaire, and the data collection procedure. Since the participants of this study have a homogenous mixture of 17–18-year-old students, those classified as minors – 17-year-old students – were given informed consent forms during the orientation. After the orientation and distribution of the consent forms, the researcher coordinated with the respective SHS coordinator on the floating questionnaire schedule. On the scheduled date of the floating questionnaire, the signed informed-consent forms were collected before the participants were included in the study.

Although TRAILS is a web-based tool meant to be answered online, this study was aware of the technology limitations of public schools in the country. On this ground, the TRAILS-12 General Assessment 1 was responded to by SHS students, once arrangements were set, in a printed questionnaire. The questionnaires were collected immediately. As reflected in the data privacy statement in the cover letter, the information is solely for research purposes, and any other purpose not stated will be impermissible. Data such as name, age, and sex were not included in the data collection. After the questionnaire was floated in all seven (7) SHS public schools, the questionnaires were encoded on the TRAILS website, and data consolidation and analysis commenced. Data gathered will be deleted from the researcher's local file drive for data retention and disposal. They shall execute an affidavit that no copies of the data are stored and published elsewhere. Such activity shall take effect a week after the author completes the research activities.

Statistical Treatment of Data

The system automatically processes the data on any TRAILS assessment, and a report on the result of any TRAILS session is readily available to the account holder. And in this case, the TRAILS account of the researcher was used. Reports generated by the system are derived from the statistical treatment of student respondents using descriptive statistics, specifically frequency counts, mean, and standard deviation. The class report provides detailed information on class performance for each item. Results are reported for each item by the number and percentage of students choosing each possible response, with correct answers highlighted. The class report may identify areas of strengths and weaknesses in students' understanding of specific concepts related to IL, which will assist in targeting the school's instructional efforts (Kent State University Libraries, 2017). "Class" in this study refers to each public Senior High School chosen as a participant in the IL assessment.

A comprehensive report that includes and summarizes all the schools' responses was generated to answer Problem #1 on the general IL skills level of Grade 12 public SHS students from the seven (7) schools. A class report for each of the schools was generated and analyzed. A detailed class report for each of the student respondents was also generated. The Grade 12 SHS student's performance in the five (5) IL categories was generated. The gathered sample was tested for normality using the Shapiro-Wilk test. The resulting p-value was 0.000, meaning the distribution is not normal. Since the data were not normally distributed, the mean was not applicable to locate the central tendency; instead, the mode and the median were employed to find the central location, while the spread was measured using the range and the quartile deviation.

The data, initially processed by the TRAILS system, was downloaded and processed in Microsoft Excel. This time the data was grouped by track. The grouped data were then tested for the significant difference in the respondents' IL when grouped according to track by IL category. To determine the significant difference, the Kruskal-Wallis H-Test was applied.

Research Findings

Respective IL Skills of the Seven (7) Schools

It is vital to have a closer look at the data gathered from each of the respondent schools. Table 3 presents the range of student scores for each public SHS in Santa Rosa. The composition of the student respondents for each of the seven (7) schools is heterogeneous, i.e., the students are taking different tracks and varying specializations.

The schools with the highest IL scores only have a three percent (3%) difference: School C at 70% and School E at 67%. At the same time, the schools that garnered the lowest IL scores with 43% are School B and School G. Noticeable from this outcome is that the schools with high IL scores are senior high schools that offer academic tracks. This is most evident in School E, which only caters to the STEM track. School C may not purely offer the academic track, but still, the students who comprised the respondents are taking up the ABM track.

On the contrary, the schools with the lowest IL scores are those that are only offering the TVL

and GAS tracks. This can be attributed to Dadzie’s (2009) observation that while some schools recognize the importance of providing some forms of IL training, many more schools do not see a need for IL in their course content. However, vocational education must endeavor to meet the challenge of providing a broader education that develops students’ academic, vocational, and technical skills for more competitive careers or advanced studies (Xing et al., 2006).

Table 3. *IL Skills Level of Public SHS Students in the City of Santa Rosa, Laguna*

SHS Schools	Range of Student Scores	QI
School A n = 38	5-16 (17%-53%)	Poor-Average
School B n = 46	2-13 (7%-43%)	Poor-Average
School C n = 27	2-21 (7%-70%)	Poor-Good
School D n = 81	3-14 (10%-47%)	Poor-Average
School E n = 48	4-20 (13%-67%)	Poor-Good
School F n = 29	3-15 (10%-50%)	Poor-Average
School G n = 44	5-13 (17%-43%)	Poor-Average

Grade 12 SHS Performance on Five (5) IL Skills Categories

The TRAILS-12 General Assessment 1, like all the other assessments in the TRAILS platform, is a multiple-choice, standards-based knowledge assessment that measures competencies in five information categories. As previously discussed, these categories are based on the AASL’s Standards for the 21st Century Learner. They are as follows: develop topic, identify potential sources, develop, use, and revise search strategies, evaluate sources and information, recognize how to use information responsibly, ethically, and legally.

Table 4 below presents the frequency and percentage distribution of the overall IL skills of the Grade 12 SHS students. The schools are rated as Poor to Good, ranging from 7-70%. The mode score of the surveyed Grade 12 students is 27, Fair. 61.3% of the students surveyed under 21-40% (192) interpreted qualitatively as Fair, and only 3.2% (10) scored from 61-80%, Good.

Table 4. *Frequency and Percentage Distribution of the Overall IL Skills of the Respondents*

Range of Student Score in %	Frequency	Percent
0 to 20	81	25.9
21 to 40	192	61.3
41 to 60	30	9.6
61 to 80	10	3.2
Mode = 27	0	0.0
Range = 7 to 70		

Table 5a presents the frequency and percentage distribution of the IL skills of the respondents in terms of developing topic. The schools are rated as Poor to Excellent, ranging from 0-83%. The mode score of the surveyed Grade 12 students is 33, Fair. 38.7% (121) of the students surveyed are under the range of 0-20, interpreted qualitatively as Poor, and 3.8% (12) surprisingly scored from 81-100%, Excellent. Under this category, Item 3 on identifying the best research question given a list of open-ended questions had the highest number of correct answers. School B scored the highest on this item, followed by School D and School C.

Table 5a. *Frequency and Percentage Distribution of the IL Skills of the Respondents in terms of Developing Topic*

Range of Student Score in %	Frequency	Percent
0 to 20	121	38.7
21 to 40	104	33.2
41 to 60	53	16.9
61 to 80	23	7.4
81 to 100	12	3.8
Mode = 33		
Range = 0 to 83		

The results resonated with Ishkak et al. (2021) study that, as attested by the staff, the students can identify information on tasks and assignments, search and differentiate source types, locate and access information, and use information. Amusan and Lawal (2020) also found that students have moderate IL skill levels and have exhibited skills in identifying information needs and information retrieval for the search process.

The frequency and percentage distribution of the IL skills of the respondents in terms of identifying potential sources category is shown in Table 5b. The mode of the scores was at the lowest in this category at 14% (poor) compared with all the other categories. 48.2% (151) of the

Table 5b. *Frequency and Percentage Distribution of the IL Skills of the Respondents in terms of Identifying Potential Sources*

Range of Student Score in %	Frequency	Percent
0 to 20	151	48.2
21 to 40	90	28.9
41 to 60	65	20.8
61 to 80	7	2.2
81 to 100	0	0.0
Mode = 14		
Range = 0 to 71		

students surveyed are under the range of 0-20, Poor, and 2.2% (7) scored from 61-80%, Good. Similar results were seen in Majid, et al. (2020) findings, where students got the lowest ranks in selecting information sources and appraising the information process. The same was observed in an investigation where students performed poorly in synthesizing and using information and seeking information sources (Foo et al., 2017).

The SHS students scored the highest in the two categories of developing, using and revising search strategies. The frequency and percentage distribution of the IL skills of the respondents in terms of this category are presented in Table 5c.

Table 5c. *Frequency and Percentage Distribution of the IL Skills of the Respondents in terms of Developing, Using, and Revising Search Strategies*

Range of Student Score in %	Frequency	Percent
0 to 20	116	37.1
21 to 40	93	29.7
41 to 60	64	20.4
61 to 80	31	9.9
81 to 100	9	2.9
Mode = 33		
Range = 0 to 83		

The mode of the scores was 33%, Fair. 37.1% (116) of the students surveyed were under the range of 0-20, Poor, and 2.9% (9) scored from 81-100%, Excellent. Keyword searching was used as a retrieval strategy while utilizing the online public access catalog (OPAC). Material classification and arrangement made it easy for students to determine information sources (Ishkak et al., 2021; Owen, 2010). Search strategies are poor even when internet searching and evaluation tools and mechanisms are readily available (Averill & Lewis, 2013).

The fourth IL category assessed is on evaluating sources and information. The frequency and percentage distribution of the IL skills of the respondents in this category are presented in Table 5d.

Table 5d. *Frequency and Percentage Distribution of the IL Skills of the Respondents in terms of Evaluating Sources and Information*

Range of Student Score in %	Frequency	Percent
0 to 20	148	47.3
21 to 40	88	28.1
41 to 60	57	18.2
61 to 80	16	5.1
81 to 100	4	1.3
Mode = 17		
Range = 0 to 83		

The student respondents' mode score is 17%, interpreted as Poor under this category. 47.3% (148) of the students surveyed were under the range of 0-20, Poor, and 1.3% (4) scored from 81-100%, Excellent. School C and School E scored the highest among the respondent schools. Overall, the students demonstrated adeptness in identifying the site most likely to be objective given a topic and a list of potential websites. However, contradictory to this result, having a low score for the item asked the students to identify a biased source or position given a list of article titles. In the age of fake news and misinformation, this item is one of the most crucial points to be addressed. Averill and Lewis (2013) found that students did not adhere to the research process, mainly trusting Google and Wikipedia. Students did not patronize peer-reviewed journals and monographs. This practice still prevailed even after students were instructed in high school. Students were seen as weak in identifying unverified information (Ishkak et al., 2021). As a result of weakness in this skill, students sought help in identifying and evaluating important information (Kovalik et al., 2013).

The fourth IL category assessed is on evaluating sources and information. Table 4e presents the frequency and percentage distribution of the IL skills of the respondents in terms of using information responsibly, ethically, and legally. The mode score of the students is at 40% (Fair), the category that garnered the highest score. 47.9% (150) of the students surveyed were under the range of 0-20, Poor, and 0.3% (1) scored from 81-100%, Excellent. It is important to note that 51.8% (162) scored ranging from 21-80, Fair-Good. School E and School C again collected the top scores for this category. The overall score for one of the items under this category is the lowest, which can be attributed to School B scoring low, affecting the overall total percentage for this item. On the optimistic side, the Grade 12 students also scored relatively high on an item, with School C (63%) leading the group in identifying a form of plagiarism. As a result, they cannot determine and differentiate unverified sources from credible ones. Plagiarism was expectedly inevitable (Averill & Lewis, 2013). Outputs of students in essay form were fair as students presented the output in a general sense resulting from failing to identify the best research sources (Ishkak et al., 2021).

Table 5e. **Frequency and Percentage Distribution of the IL Skills of the Respondents in terms of Recognizing how to Use Information Responsibly, Ethically, and Legally**

Range of Student Score in %	Frequency	Percent
0 to 20	150	47.9
21 to 40	102	32.6
41 to 60	40	12.8
61 to 80	20	6.4
81 to 100	1	0.3
Mode = 40		
Range = 0 to 100		

To summarize, the IL skills assessment result for the respondents for the five (5) categories revealed that their strengths in answering questions under three (3) categories: use information responsibly, ethically, and legally (40%), develop, use, and revise search strategies (33%); and developing topic category (33%). The schools performed well next on evaluating sources and information at 17%. The combined scores of the students were at the lowest in identifying potential sources category (14%). This result gives the impression that the student respondents have reasonable skills in understanding how to use the features of an information source to retrieve the information needed.

Furthermore, the respondents also demonstrated a fair share of understanding of the concepts of intellectual property and intellectual freedom per the definition of the TRAILS categories. The category in which the SHS students scored the lowest, identifying potential sources again comes into terms with what Averill and Lewis (2013) have to say: “It would seem that in a world replete with information sources and where students access is at an all-time high, the ability to find, evaluate, and apply information is at an all-time low (p. 114)”. As cited by Varlejs and Stec (2013), this is also affirmed by the Pew Research Center’s study How Teens Do Research in the Digital World (Purcell et al., 2012), finding out that students used library resources to complete assignments less than 20 percent of the time, relying instead on Google and other electronic sources. The study of undergraduates’ search behavior by Taylor (2012) concluded that students’ proceeded erratically and did little to evaluate information.

IL Skills Profile of the SHS Schools per Track

Looking further at the data gathered from each of the respondent schools. Table 6a-6e presents the respondents’ IL skills profile per IL category grouped according to track offerings. The composition of the student respondents for each of the seven (7) schools is heterogeneous, Accountancy, Business, and Management (ABM), General Academic Strand (GAS), Science, Technology, Engineering, and Mathematics (STEM), and Technical-Vocational-Livelihood (TVL).

All the students under ABM are from School C. As discussed in the previous section, they had a total population of 120 for its SHS. Twenty-seven (27) students comprised the respondents

collected for the IL assessment. The students under GAS are from school D and School G. A total population of 125 students included in the sample for GAS, the highest number of respondents among all tracks. The STEM Strand is from School E and is considered a homogenous group, as discussed in the previous section. The students under the TVL strand are from three (3) schools: School A, School B, and School F. A total population of 113 students comprised the respondents for TVL, the second highest among all tracks.

Table 6a shows the respondents' IL skills profile on developing a topic when grouped according to track offerings. Consistent with the previous results, the students from ABM (School C) and STEM (School E), with a qualitative result of Poor to Excellent and Poor to Good, respectively, performed well. The highest lowest score came from STEM at 13%. It is important to note that under this IL category, the GAS strand showed the same result as ABM with a mode of 17 with scores ranging from 0-83%. The TVL strand, on the one hand, got the second highest lowest score at 7%, with a mode of 20 qualitatively interpreted as Poor to Average.

Table 6a. *Respondents' IL Skills Profile on Developing of Topic when Grouped according to Track Offering*

Track	Mode	Range	Qualitative Interpretation Range
ABM	17	0 to 83	Poor to Excellent
GAS	17	0 to 83	Poor to Excellent
STEM	40	13 to 67	Poor to Good
TVL	20	7 to 53	Poor to Average

Table 6b shows the IL skills profile of the respondents in identifying potential sources when grouped according to track offerings. Similar to the results of the previous categories, students from ABM (School C) and STEM (School E) again performed well in this category with a qualitative result of Poor to Good with the highest score under this category at 71%. The mode across all strands for this category is 14, with GAS and TVL strands having the same qualitative result of Poor to Average, with scores ranging from 0-57%.

Table 6b. *Respondents' IL Skills Profile on Identifying Potential Sources when Grouped according to Track Offering*

Track	Mode	Range	Qualitative Interpretation Range
ABM	14	0 to 71	Poor to Good
GAS	14	0 to 57	Poor to Average
STEM	14	0 to 71	Poor to Good
TVL	14	0 to 57	Poor to Average

The IL skills profile of the respondents on developing, using, and revising search strategies grouped according to track offerings are shown in Table 6c. The students from ABM (School C) and STEM (School E) with a qualitative result of Poor to excellent, with the highest score under this category at 83%. Under this category, the TVL strand showed the same result as ABM and STEM, with a mode of 50 and scores ranging from 0 to 83%. GAS has a qualitative result of Poor to Average with scores ranging from 0-67% and a mode of 33, the lowest among the strands.

Table 6c. **Respondents' IL Skills Profile on Developing, Using, and Revising Search Strategies when Grouped according to Track Offering**

Track	Mode	Range	Qualitative Interpretation Range
ABM	67	0 to 83	Poor to Excellent
GAS	33	0 to 67	Poor to Average
STEM	50	0 to 83	Poor to Excellent
TVL	50	0 to 83	Poor to Excellent

The IL skills profile of the respondents on evaluating sources and information grouped according to track offerings are shown in Table 6d. The students enrolled under the STEM strand (School E) and those under the GAS strand share the same qualitative result of Poor to Excellent, with the highest score under this category at 83%. They differ, however, with their respective mode at 33 and 17. Under this category, the TVL strand showed the same result as ABM, with a qualitative result of Poor to Average, with a mode of 17 and 50 respectively and scores ranging from 0 to 67%.

Table 6d. **Respondents' IL Skills Profile on Evaluating Sources and Information when Grouped according to Track Offering**

Track	Mode	Range	Qualitative Interpretation Range
ABM	50	0 to 67	Poor to Good
GAS	17	0 to 83	Poor to Excellent
STEM	33	0 to 83	Poor to Excellent
TVL	17	0 to 67	Poor to Good

Table 6e shows the IL skills profile of the respondents on recognizing how to use information responsibly, ethically, and legally when grouped according to track offerings. The students enrolled under the STEM strand (School E) have a qualitative result of Poor to Excellent, with the highest score under this category at 100% with a mode of 40. ABM, GAS, and TVL share the same qualitative result of Poor to Good, ranging from 0-80%. The mode for ABM is 60, while TVL has a mode of 40. The mode for GAS is 0, meaning that most students answered the questions under this category incorrectly.

Table 6e. **Respondents' IL Skills Profile on Evaluating Sources and Information when Grouped according to Track Offering**

Track	Mode	Range	Qualitative Interpretation Range
ABM	60	0 to 80	Poor to Good
GAS	0	0 to 80	Poor to Good
STEM	40	0 to 100	Poor to Excellent
TVL	40	0 to 80	Poor to Good

In summary, the STEM strand performed well with three categories – Developing, Using, and Revising Search Strategies, Evaluating Sources and Information, and Recognizing How to Use Information Responsibly, Ethically, And Legally – having a qualitative analysis of Poor to Excellent. STEM also performed considerably well under the categories Develop Topic and Identifying Potential Sources with a qualitative analysis of Poor to Good. On the other hand, ABM performed Poor to Excellent under the Develop Topic category and Poor to Good in all the other 5 IL Skills categories. Surprisingly, GAS performed Poor to Excellent in two categories – Develop Topic and Evaluating Sources and Information. Under recognizing how to use information responsibly, ethically, and legally, GAS has a qualitative result of Poor to Good and Poor to Average results under these categories - Identifying Potential Sources and Developing, Using, and Revising Search Strategies. TVL strand performed Poor to Excellent under the category of Developing, Using, and Revising Search Strategies; Poor to Average under two (2) categories – Develop Topic and Identifying Potential Sources; and, Poor to Good also under two (2) categories – Evaluating Sources and Information and Recognizing How to Use Information Responsibly, Ethically, And Legally.

IL Skills According to Track by IL Category

In the first section of the data analysis, the researcher analyzed the skills of the students according to track by IL category and checked if there were significant difference in the IL skills when they were grouped according to their track by the five (5) IL categories identified by TRAILS, and the overall total. To determine the significant difference, the Kruskal-Wallis H-Test was applied.

Table 7 below shows the relevant results of the statistics. Under Develop Topic, there is a significant difference in the respondents' IL skills when grouped per track.

STEM has a mean mark of 106.88, while TVL has 179.0. The computed K-statistic is 25.066 and has a p-value of 0.000. For Identify Potential Sources, there is also a significant difference in the IL skills of the respondents when grouped per track. ABM has a mean mark of 124.81, while GAS has 170.42. The computed K-statistic is 12.019, and the p-value of 0.007. The category Develop, Use, and Revise Search Strategies also shows a significant difference in the respondents' IL skills when grouped per track. ABM has a mean mark of 85.26, while TVL has 201.44. The computed K-statistic is 54.645 and has a p-value of 0.000. Under Evaluate Sources and Information, there is a significant difference in the respondents' IL skills when grouped per track. ABM has a mean mark of 117.54, while TVL has 174.50. For Recognize how to Use

Table 7. *Kruskal – Wallis H – Test: Comparison of the Respondent's Information Literacy Skills when Grouped According to Track Offering*

Indicators	Track	Mean Rank	K-statistic	p-value	Decision	Remarks
Develop Topic	ABM	126.26	25.066	0.000	Reject Ho	Significant
	GAS	163.00				
	STEM	106.88				
	TVL	179.00				
Identify Potential Sources	ABM	124.81	12.019	0.007	Reject Ho	Significant
	GAS	170.42				
	STEM	126.65				
	TVL	162.73				
Develop, Use, and Revise Search Strategies	ABM	85.26	54.645	0.000	Reject Ho	Significant
	GAS	147.39				
	STEM	117.76				
	TVL	201.44				
Evaluate Sources and Information	ABM	117.54	14.235	0.003	Reject Ho	Significant
	GAS	160.55				
	STEM	128.74				
	TVL	174.50				
Recognize how to Use Information Responsibly, Ethically, and Legally	ABM	104.65	43.086	0.000	Reject Ho	Significant
	GAS	187.10				
	STEM	98.58				
	TVL	161.03				

Note: "If the p-value is less than or equal to the level of significance (0.05), reject Ho. Otherwise failed to reject Ho."

Information Responsibly, Ethically, and Legally there is also a significant difference in the IL skills of the respondents when they are grouped per track. STEM has a mean mark of 98.58, while GAS has 187.10. The computed K-statistic is 43.086 and has a p-value of 0.000.

In these results, the study's null hypothesis states that the mean IL skills of the four strands are equal. Because the p-value is 0.000, which is lesser than the significance level of 0.05, the null hypothesis is rejected. Some of the strands have different means. This data shows that the IL skills differ significantly when the respondents are grouped according to track offering, as evident in the results of the findings in the previous section, where the scores of the students taking the STEM and ABM tracks are higher than the students who are taking up the TVL and GAS tracks. This result is affirmed by the study of Rusiana and Naparota (2021). Their findings showed a significant mean difference in the skills level on MIL when their respondents were grouped according to career strand (track offering). The computed value for ANOVA is equal to 2.8166, which is greater than the tabulated value (F critical value) of 2.4271 with the degree of freedom of 4/163 and at a 0.05 level of significance.

Conclusion

The IL skills level of Grade 12 SHS students in the City of Santa Rosa, Laguna, is far from ideal compared to the TRAILS-12 General Assessment 1 national benchmark for the United States, which is the only available benchmark. However, this result must be viewed with caution for several reasons: the absence of a Philippine IL skills benchmark; the overall IL skills result was not correlated in any way with the absence or presence of IL literacy programs in the respective schools; the overall IL skills result was not also correlated with any IL skills training in junior high school or any other level before SHS; and no other method (e.g., interview, focus group discussion) was employed to confirm the assessment results. These might be seen as limitations of the study. Still, the objective of conducting a preliminary or initial assessment of the IL skills level of Grade 12 SHS students was met.

For the respective IL skills levels of the schools, the high expectation was set for the IL skills of SHS students because of the inclusion of MIL in the K to 12 curricula. Still, the course's efficacy is yet to be assessed with the resulting overall IL skills of students after taking the course. Moreover, it has been observed that the composition of the student respondents for each of the seven (7) schools is heterogeneous, i.e., the students are taking different tracks and varying specializations. The schools with high IL scores are senior high schools that offer any academic tracks – STEM and ABM. The schools with the lowest IL scores are those that offer the GAS and TVL track. It can be deduced that there is less emphasis on IL skills for those taking up the vocational tracks, though this was a need even at the onset of the study.

Even though the IL skills assessment for the five (5) categories only resulted in a Fair mark, the senior high students manifested persistence in developing, using, and revising search strategies. This shows that the students exhaust their strategies in navigating an information resource to meet a specific information need. Nevertheless, this persistence must be emphasized not because of their search strategy skills but because they have difficulty identifying potential sources, as revealed by the data gathered. They need to keep on revising the search because it could be that they cannot quickly pinpoint what sources will adequately address a specific query.

Recommendations

Generally speaking and with the limitation of the study as merely an initial assessment of IL skill Generally speaking and with the limitation of the study as merely an initial assessment of IL skills of public SHS students of the City of Santa Rosa, Laguna using a standardized based tool, TRAILS-12 General Assessment 1, it is recommended that the quantitative result be studied alongside prior exposure of students to IL skills training. This could be in the form of library instruction sessions at the junior high school level, or this could also be sessions attended by students on media literacy or even digital literacy. The ideal research methodology can be an initial survey questionnaire and then a focus group discussion to further confirm the effect of such training on how they answer questions incorporated in the TRAILS-12 assessment. Apart from this, this study can also serve as a pre-test result, and a post-test can be conducted after the

students are already through with their MIL subject. Furthermore, the result of this study is also a rich mine if the students have already taken their MIL subject because it raises an inquiry on why the IL result is low despite the MIL intervention as a core subject. The inquiry must be made across the IL categories involving the students and teachers who handled the MIL subjects.

Each respondent school must recognize the value of libraries and librarians in improving the IL skills of their students. Owen (2010) concluded that IL assessments, specifically TRAILS, can collaborate with classroom teachers, assess student learning, revise their IL instruction, and produce evidence of their library's impact on student achievement. It is also a valuable assessment tool to measure a school library's IL instruction program and demonstrate the value of the library's contribution to student achievement (p.38). Three (3) out of the seven (7) respondent schools have no fully functional libraries; hence, no IL program exists. An IL program is an essential complement to the MIL course content. The IL assessment result of this study must be considered in proposing and lobbying to have a library and a professional librarian in all the schools regardless of the senior high track/s offered by each school.

For the IL skills categories, an emphasis must be made in the MIL or Practical Research course on the most fundamental concept in IL, which is the research process. Suppose this foundational topic, knowing the correct order of the information-seeking process, is instilled in students at the high school level. In that case, they are equipped to be information literate on their way to the tertiary level, where learning is more independent.

Public school libraries need to capitalize on aggressive IL sessions to empower the yet average skill level of the students. The study's results may inspire such sessions, and research may be pursued to further validate the results.

Disclosure Statement

The author reported no potential conflict of interest. This paper is a condensed version of the thesis submitted by the author in completion of her Masters in Library and Information Science (MLIS) at Polytechnic University of the Philippines.

References

- American Association of School Librarians (AASL) & Association for Educational Communications and Technology (AECT). (1998). *Information literacy standards for student learning*. <https://bit.ly/3FFZym2>.
- Association of College and Research Libraries (ACRL). (2000). *Information literacy competency standards for higher education*. American Library Association, Chicago. <https://bit.ly/3Uon7E9>.
- Association of College and Research Libraries (ACRL). (2015). *Framework for information literacy for higher education*, Association of College and Research Libraries, Chicago. <https://www.ala.org/acrl/standards/ilframework>.
- Allen, M.J. (2004). *Assessing academic programs in higher education*. San Francisco: Jossey-Bass.
- American Librarians Association (ALA). (October 11, 2011). *Standards for the 21st-century learner*. <https://bit.ly/3Dw9pbl>.
- American Library Association. (2014, April 14). *ALA releases 2014 State of America's Libraries Report*. <http://www.ala.org/news/press-releases/2014/04/ala-releases-2014-state-america-s-libraries-report>
- Amusan, B. & Lawal, O.W. (2020). *Information literacy skills and media resource utilisation among secondary school students in Lagos State, Nigeria*. Library Philosophy and Practice, 1-13. <https://digitalcommons.unl.edu/libphilprac/4109>
- Angell, K., & Tewell, E. (2013). *Collaborating for academic success: A tri-institutional information literacy program for high school students*. Public Services Quarterly, 9(1), 1-19. https://digitalcommons.liu.edu/cgi/viewcontent.cgi?article=1023&context=brooklyn_libfacpubs
- Asian Institute of Journalism & Communication (AIJC) (2016). *Media and information literacy (MIL) in the Philippines: Background and Policy Paper*[Unpublished Paper].
- Averill, D., & Lewis, N. (2013). Students and information literacy: High school and postsecondary perspectives. *Maine Policy Review*, 22(1), 114-117. <https://digitalcommons.library.umaine.edu/mpr/vol22/iss1/28>.
- Baji, & Bigdeli, Z. (2016). Adapting and normalizing the 6th grade version of the Tool for Real-Time Assessment of Information Literacy Skills (TRAILS) among the Iranian 6th grade students to information management and beyond. *Pakistan Journal of Information Management & Libraries*, 17, 137-145. <https://doi.org/10.47657/201617901>.
- Bautista, A. (2021). Teaching media and information literacy in Philippine senior high schools: Strategies used, and challenges faced by selected teachers. *Asian Journal on Perspectives in Education*. <https://ssrn.com/abstract=3930867>.
- Chu, S. K. W. (2012). Assessing information literacy: A case study of primary 5 students in Hong Kong. *School Library Research*, 15.
- Dadzie, P. (2009). Information literacy in higher education: Overview of initiatives at two Ghanaian universities. *African Journal of Library, Archives & Information Science* 19(2): 165-175.

- Dela Cruz, M.V. (2014). *The effects of the Media Instruction Program (MIP) modules on the information literacy skills of the Ateneo de Manila Grade School Grade Five Students*. [Master's thesis, University of the Philippines-Diliman]. <https://digitalarchives.upd.edu.ph/item/3761/12/HfM2JB5FdcE955g1655hmfmb>.
- Dela Cruz, M.V. (2016). The media and information literacy program of the Ateneo de Manila Grade School [Conference Proceedings]. *IASL Conference: A school library built for the digital age*. Tokyo, Japan. <https://doi.org/10.29173/iasl7191>.
- Domingo, A. S. (2017). *Analysis of information literacy competencies assessment studies submitted to the University of the Philippines School of Library and Information Studies (2002-2016)*. [Special Problem, University of the Philippines-Diliman]. <https://digitalarchives.upd.edu.ph>.
- Evangelista, D.M. (2018). *Marist School integrated information literacy program (MaSInform program): A study on the integration of library lessons and information literacy skills in a school's curriculum based on the fully integrated collaborative model of integrated curriculum* [Master's thesis, University of the Philippines-Diliman]. <https://digitalarchives.upd.edu.ph/item/26081/12/HfM2JB5FdcE955g1655hmfmb>
- Foo, S., Majid, S. & Chang, Y.K. (2017). Assessing information literacy skills among young information age students in Singapore. *Aslib Journal of Information Management*, 69(3), pp. 335-353. <https://doi.org/10.1108/AJIM-08-2016-0138>
- Foo, S., Majid, S., Mokhtar, I.A., Zhang, X., Chang, Y.K., Luyt, B., &Theng, Y.L. (2014). Information literacy skills of secondary school students in Singapore. *Aslib Journal of Information Management*, 66(1), pp. 54-76. <https://doi.org/10.1108/AJIM-08-2012-0066>
- Gross, M. & Latham, D. (2007). Attaining information literacy: an investigation of the relationship between skill level, self-estimates of skill, and library anxiety. *Library & Information Science Research* 29(3): 332-353.
- Gyesi, K. (2020). The Use of computers by students to access information literacy: case of Okuapeman Senior High School (SHS), Ghana (2020). *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/4161>
- Iskhak, M., Jannana, N. S., Diana, S., Azizah, N., & Nurmalsari, I. (2021). Developing student information literacy skill in senior high school. *Manageria: Jurnal Manajemen Pendidikan Islam*, 6(1), 125-140. <https://doi.org/10.14421/manageria.2021.61-08>.
- Kent State University Libraries (2017). "Welcome." *Tool for Real-time Assessment of Information Literacy Skills (TRAILS)*. www.trails-9.org
- Kovalik, C., Yutzey, S., & Piazza, L. (2013). Information literacy and high school seniors: Perceptions of the research process. *School Library Research*, 16. <https://bit.ly/3UiG6Qh>.
- Kovalik, C.L., Yutzey, S.D. & Piazza, L.M. (2012). Assessing change in high school students' information literacy using the Tool for Real-time Assessment of Information Literacy Skills. *Contemporary Issues in Education Research* 5(3): 153-166.
- Labangon, D. L. & Zabala, J. L. (2018). *Towards a literate studentry: Media and information literacy implementation in the Philippines*. Paper presented at 17th Congress of Southeast Asian Librarians,

- Naypyitaw, Myanmar. <https://ojs.lboro.ac.uk/JIL/article/download/PRJ-V12-I2-5/2759/>.
- Laluces, K.X. (2016). *Exploring digital literacy in selected private secondary schools in Metro Manila* [Master's thesis, University of the Philippines-Diliman]. <https://bit.ly/3DxPDMY>.
- Majid, S., Foo, S., & Chang, Y.K. (2020). Appraising information literacy skills of students in Singapore. *Aslib Journal of Information Management*, 72(3), pp. 379-394. <https://doi.org/10.1108/AJIM-01-2020-0006>.
- Martin, E.C. (2010). Outcome evaluation of the library media program on information literacy skills. *MCPS Evaluation Brief, Oct 2010: 1-12*.
- Miller, C. (2016). TRAILS: Tool for real-time assessment of information literacy skills. *The Charleston Advisor*, 17(3), 43-48.
- Naval, L. D. (2018). *The level of information literacy skills of grade 12 students in selected private schools in Taytay, Rizal: Basis for the development of an information literacy program* [Master's thesis, Polytechnic University of the Philippines]. <http://ils.pup.edu.ph/cgi-bin/koha/opac-detail.pl?biblionumber=74762>
- Ngo, H.T., Pickard, A. J., & Walton, G. (2019). Information literacy capabilities of upper secondary students: the case of Vietnam. *Global Knowledge, Memory and Communication*, 68(6/7), 453-470. <https://doi.org/10.1108/GKMC-03-2019-0037>
- Oakleaf, M. (2008). Dangers and opportunities: a conceptual map of information literacy assessment approaches. *Libraries and the Academy* 8: 233-253.
- Owen, P. L. (2010). Using TRAILS to assess student learning: a step-by-step guide. *Library Media Connection* 28(6): 36-38.
- Philippine Statistics Authority (PSA). (2013). *2013 Functional literacy, education and mass media survey (FLEMMS) final report*. <https://psa.gov.ph/sites/default/files/2013%20FLEMMS%20Final%20Report.pdf>
- Purcell et al. (2012). How Teens Do Research in the Digital World. *Pew Internet & American Life Project*. <https://eric.ed.gov/?id=ED537513>
- Radcliff, C. (2019, July 7). *Update on an infolit assessment classic: TRAILS*. Information Literacy Assessment. <https://www.informationliteracyassessment.com/?p=1714>
- Reddy, P., Sharma, B., Chaudhary, K., Lolohea, O. & Tamath, R. (2021). Information literacy: a desideratum of the 21st century. *Online Information Review*. <https://doi.org/10.1108/OIR-09-2020-0395>
- Rosman, T., Mayer, A., & Krampen, G. (2014). Combining self-assessments and achievement tests in information literacy assessment: empirical results and recommendations for practice. *Assessment and Evaluation in Higher Education*. <https://doi:10.1080/02602938.2014.950554>
- Rusiana, M.C. & Naparota, L.C. (2021). Media and information literacy skills of senior high school students of Andres Bonifacio College. *International Journal of Trend in Scientific Research and Development*, 5(3), 930-943. <https://www.ijtsrd.com/papers/ijtsrd40007.pdf>

- Schijf, C.M. (2015). *What makes them flip the pages? An information literacy skills assessment of the DLSU Integrated School Grade 9 Students [Conference Proceedings]*. The Asian Conference on Literature and Librarianship 2015. Osaka International Convention Center, Osaka, Japan. April 2-5, 2015.
- Sheret, L., & Steele, J. A. (2013). Information Literacy Assessment: Keep It Simple, Keep It Going. *Reference & User Services Quarterly*, 52(3), 208. <https://www.proquest.com/openview/58d21ca19c19eba68b652e2c7c974951/1?pq-origsite=gscholar&cbl=40834>
- Sunaga, K. (2017). *Information skills which teachers would like to teach and which students would like to learn: the survey of information literacy in senior high school*. In The Fifth European Conference on Information Literacy (ECIL) (p. 132).
- Sunaga, K. (2019). Information literacy in France and Japan. *Qualitative and Quantitative Methods In Libraries*, 6(2), 209-216. <http://qqml-journal.net/index.php/qqml/article/view/401>
- Taylor, A. (2012). A study of the information search behavior of the millennial generation. *Information Research*, 17(1) paper 508. <http://InformationR.net/ir/17-1/paper508.html>.
- United Nations Educational, Scientific and Cultural Organization (UNESCO) (2005). *Toward knowledge societies*. UNESCO World Report. Conde-sur-Noireau, France: Imprimerie Corlet.
- Xing, Y., Li, H., & Huang, M. B. (2007). Information literacy in vocational education: A course model. *Chinese Librarianship: An International Electronic Journal [em linha]*, (23). <https://www.white-clouds.com/iclc/cliej/cl23XLH.htm>