National Information Literacy Survey of Primary and Secondary School Students in Singapore - A Pilot Study

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Abstract. The National Library Board (NLB) and Ministry of Education (MOE) in Singapore have collaborated to carry out a National Information Literacy (IL) Program for primary and secondary school students. The program involves developing a curriculum framework that can be introduced in specific school subjects where IL competencies can be nurtured. Surveys were developed to identify students' IL strengths and weaknesses and guide relevant intervention planning and implementation. IL academics from Nanyang Technological University, Singapore, were involved in formulating the proposed IL model for schools, curriculum framework, as well as in reviewing and assessing the findings of the surveys. At this point, the survey instrument has been formulated and a pilot test of the instrument has been administered to more than 70 primary school students and about 20 secondary school students. This paper shares the main analyses of the pilot survey, according to the proposed model for IL for Singapore schools.

Keywords: Singapore, primary school students, secondary school students, information literacy.

1 Introduction

Information literacy (IL) has been described as the ability to locate, access, search, evaluate and use information in different contexts [1]. In this day and age, with information being increasingly digitized, and the pervasive use of information and communication technologies (ICTs) in our daily lives, IL has become a basic competency to navigate through the deluge of information to meet our information needs for both work and leisure activities.

For students, being information literate has become a basic competency that can help them effectively sieve through and identify relevant and reliable information that they get through the Internet, television, smart phones, or friends, for school-related work or

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for personal interest and development. In other words, for most of our students, IL equips them with the ability to engage with their information environment as part of both their formal and informal learning processes [2].

2 IL Policies in the Singapore Education System

Singapore is a small and relatively young island nation located in Southeast Asia, at the southern tip of Peninsula Malaysia. Despite its youth as a nation, the Singapore education system is a very dynamic sector that has evolved continuously over the years, and has been recognized as one of the most successful in the world [3-4].

IL in the Singapore school sector has also evolved since it was first introduced in 1997. For a detailed overview of the evolution of IL in Singapore schools, refer to the paper by Foo, *et al.* [5]

3 Proposed Model for IL and Competence for Singapore Schools

Academics from the Nanyang Technological University's (NTU) Information Literacy Research Cluster have developed a model for information literacy and competence that can be used as a reference for incorporating IL in the Singapore school curriculum [6]. This proposed model is the result of several years of research work – both through research studies, literature reviews and publications – in the area, as well as comparing established IL models and standards [7, 8, 9, 10]. The proposed model consists of five components of IL competencies that are shaped by three essential qualities (Figure 1).

The five components are not meant to be carried out in a linear manner, but rather, in an iterative way where an information literate student would be expected to demonstrate competency in each of these five areas. In addition to the five components, three essential qualities have been identified as being necessary in supporting the development of the five components of IL competencies. These three qualities of 'Social Responsibility', 'Collaboration', and 'Positive Attitudes', were identified based on the Character and Citizenship Education (CCE) Framework for Singapore schools [11]. 'Social Responsibility' refers to one's ability to understand and exhibit relevant moral and social aspects of behavior in the information literacy process. 'Collaboration' refers to one's ability to seek, share and create information as part of a team to achieve a common set of objectives, while 'Positive Attitudes' refers to one's ability to display an appropriate state of mind and character attributes. However, it must be recognized that the last set of qualities (i.e. Positive Attitudes) may not be easily captured through a survey or test. This set of qualities is likely to be observed or self-reported, rather than can be adequately tested to determine its presence.

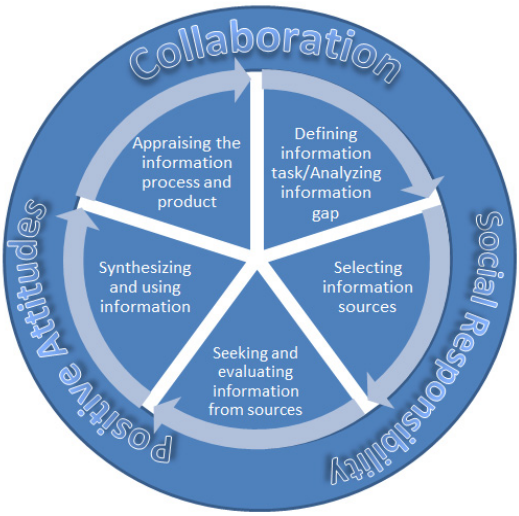

Fig. 1. I-Competent model (Source: NTU, 2013)

This model serves as a guide in designing an IL curriculum framework for Singapore schools, and in designing surveys to assess the level of IL of students in the different school grade levels.

4 Recent Emphases on IL and Problem Statement

Recently, there has been a renewed emphasis towards education policies that are rooted in IL [12] and related competencies such as 21st century competencies, critical thinking, and information and communication skills. In addition, a renewed emphasis on character and citizenship education in the school curriculum has also led to a new focus on cyber wellness and literacy that aims to promote both 'respect for self and others' when using technology, and 'safe and responsible use of' technology [13]. Hence, these are clear indications that schools in Singapore are headed towards greater information, media and technology literacy that revolves around responsible, ethical and safe use of technology and information in the cyber and print environments.

With these new emphases in the schools, it is thus timely to determine the current level of IL among students.

5 Survey Instrument and Methodology

Three different surveys were designed collaboratively between NTU and National Library Board, for students in Grade 3 (ages 8 to 9 years old), Grade 5 (ages 10 to 11 years old), and Grade 9 (ages 14 to 15 years old). There were 12 questions related to IL, 3 questions related to the essential qualities and 4 demographic-related questions for Grade 3; there were 22 questions related to IL, 3 questions related to the essential

qualities and 4 demographic-related questions for grade 5; and there were 29 questions related to IL, 6 questions related to the essential qualities and 8 demographic-related questions for Grade 9. Table 1 provides an overview of the number and types of questions for each of the grade levels.

Table 1. Overview of the number of survey questions for the different grade levels

Grade Level	Defining information task/ Analyzing information gap	Selecting information	Seeking and evaluating information from	Synthesizing and using information	Appraising the information process and	Collaboration	Social Responsibility	Positive Attitudes
Grade 3	2	4	3	3	N.A.	1	2	N.A.
Grade 5	2	9	6	5	N.A.	1	2	N.A.
Grade 9	6	10	6	6	1	1	3	2

The pilot test of the survey for Grades 3 and 5 was carried out during curriculum time in school. Students from each of the grades took about 25-30 minutes to complete the survey. A total of 42 students in Grade 3, and 35 students in Grade 5 completed the survey.

For Grade 9, a total of 22 students completed the survey as a take-home task. When enquired, the average time to complete the survey ranged between 30 and 45 minutes.

6 Demographics and Significant Findings

6.1 Grade 3 Students

For Grade 3 students (N = 42), it was found that 95.2% (n = 40) of the students had internet access from home, which shows a high probability of these students having access to online information. It was found that these students were not too sure what fiction or non-fiction books were, with only 71.4% (n = 30) getting the answer correct for each of the two questions that asked students to identify a book cover sample as belonging to that of a fiction or non-fiction book. It was also found that the three most difficult questions for these students were related to 'Selecting information sources', 'Seeking and evaluating information from sources', and 'Defining information task/Analyzing information gap'.

Based on the students' responses to the above three questions, it may be inferred that Grade 3 students may not have been taught about fiction or non-fiction books, or introduced to the different parts of a book or information source. With the ease of access to online information (as the majority of the Grade 3 students had access to the internet from home), it may be of concern that students may come to think of information as being available largely through the online realm and may not develop the propensity to look up information from print sources, nor see the importance of understanding the different components of various information sources and recognizing the purpose and importance of each.

6.2 Grade 5 Students

For Grade 5 students (N = 35), it was found that 97.1% (n = 34) of the students had internet access from home, which shows a high probability of these students having access to online information. Similar to the Grade 3 students, it was found that the Grade 5 students were not too sure what fiction or non-fiction books were, with less than 57% (n = 19) getting the answer correct for each of the two questions that asked students to identify a book cover sample as belonging to that of a fiction or non-fiction book. It was also found that the three most difficult questions for these students were related to 'Seeking and evaluating information from sources', and 'Synthesizing and using information'.

Based on the students' responses, it can be seen that the students were not aware how books and other materials in the library are organized according to their call numbers. Instead, the majority of students thought the materials were organized alphabetically by title (37% or n = 13) or by author names (40% or n = 14). In addition, students were not sure how they could tell the contents of a book, with only 40.0% (n = 14) indicating they would refer to the abstract and table of contents. The low correct responses for these two survey questions seem to indicate that the students rarely went to the library or bookstore to borrow or browse through books. Similar to the Grade 3 findings, the high internet access from home may further suggest that most of these students would do their reading from online sources and not quite often from print materials.

6.3 Grade 9 Students

For Grade 9 students (N = 20), it was found that 95.0% (n = 19) of the students had internet access from home, which shows a high probability of these students having access to online information. In addition, about 85.0% (n = 17) of them own a personal computer, hence, it may be inferred that the majority of these Grade 9 students had independent access to online information and may be browsing or searching through online information sources on their own. It was also found that the four most difficult questions for these students were related to 'Synthesizing and using information', 'Seeking and evaluating information from sources', and 'Selecting information sources'. From the means of the responses given, it can be seen that these Grade 9 students did not know how to cite books or other print materials (Mean = 0.20), even though they were in Grade 9 and would have done project work or resource-based assignments.

For the two questions involving the school or public librarian, it would be useful to note the mean scores for each of these two questions in light of Table 2. From here, it can be construed that these Grade 9 students did not quite consult their school or public librarians when they needed assistance in IL-related tasks such as identifying potential sources of information or to formulate search strategies, search statements or retrieve information from different sources. These students probably felt quite confident about their ability to achieve those tasks either independently or by asking their friends or classmates.

Table 2. People consulted to assist in information-literacy related tasks (N=20)

	Peers (Class-mates)	Friends	Family	Teachers	Librarians	I don't consult anyone	I don't do this task
Define the research topic & scope	13	8	2	12	-	4	-
Identify potential sources of relevant information	12	11	2	9	2	4	-
Formulate search strategy, statements & retrieve information	11	9	2	6	1	6	-
Analyze quality of retrieved information & select relevant information for use	9	4	1	6	-	11	-
Organize, compile, finalize & present answer to research topic	11	5	-	6	-	8	-
Evaluate the completed product & process of information seeking	10	7	3	9	-	5	-

7 Conclusion

The findings of this pilot study, albeit from a small group of students only, have shed some light on the information seeking, use and literacy-related characteristics that Grades 3, 5 and 9 students in Singapore schools exhibit. The pilot study has also provided interesting insights into what Singapore school students perceive of their IL competencies, what they understand about how information is organized and sought, and their perception with regard to cyber wellness and social responsibility in the online sphere. In general, the Grades 3 and 5 students have shown that they are not familiar with the types of print materials available or how print materials are organized, and were not too sure how to evaluate the information that is available or which they have obtained. For Grade 9 students, it was seen that they were generally quite familiar with the different types of print and online information sources, and they would rather depend on their personal evaluation abilities or that of their peers or classmates, than on family members, teachers or librarians. These findings are expected to help in refining the proposed IL model and curriculum framework for Singapore schools, and in designing appropriate IL intervention programs for school students.

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