The Strategy to Strengthen Information Literacy Based on Library and Digital Resources

by Nurmala Berutu

Advances in Social Science, Education and Humanities Research (ASSEHR), volume 208
1st International Conference on Social Sciences and Interdisciplinary Studies (ICSSIS 2018)

The Strategy to Strengthen Information Literacy Based on Library and Digital Resources

1st Nurmala Berutu
Department of Geography Education
Universitas Negeri Medan
Indonesia
nurmala_geo@yahoo.co.id

2nd Fitra Delita
Department of Geography Education
Universitas Negeri Medan
Indonesia
fitradelita@unimed.ac.id

3rd Anik Juli Dwi Astuti
Department of Geography Education
Universitas Negeri Medan
Indonesia anikjulidwiastuti@unimed.ac.id

4th Nina Novira
Department of Geography Education
Universitas Negeri Medan
Indonesia
ninanovira@unimed.ac.id

5th Mona Adria Wirda
Department of Geography Education
Universitas Negeri Medan
Indonesia
monaadriawirda@unimed.ac.id

***Abstract*-Information literacy is one of the keys for students to achieve success in the academic, economic, political and socio-cultural fields. Therefore, awareness of the importance of information literacy needs to be realized, especially in the education. This study aims to describe student's information literacy competency level based on standards and indicators developed by UNESCO and Swiss University. In addition, this study also formulated a strategy to strengthen information literacy based on library and digital resources. The results showed that the largest percentage of students were at the beginner level and only a few reached advanced and expert levels. The strategy of enhancing information literacy is carried out in three main stages, namely planning (embedding to the curriculum), applying in learning process, enhancing facilities, controlling and evaluating.**

Keywords-information literacy, strategy, standar and indicator.

I. INTRODUCTION

In the era of industry 4.0, information literacy skill is very important. UNESCO illuminated information literacy as fundamental skill to attain personal, social, occupational and educational objectives. Despite the information literacy related to an essential competency for involvement in the societies and knowledge economy, Information literacy has been a ignored aspect of education program [1]. In many cases educators haven't responsive although library scientists have disputed the benefits of enclosing information literacy in curricula [2]. Information literacy capabilities are really required for student in primary, secondary and higher education. Information literacy ranks among the most important key qualifications for success in study and profession in an information society.

In higher education information literacy is primarily promoted by libraries which have, in recent years, expanded on their original offers of library launches and research courses to meet the optimal placement of skills for the information society [3]. Information literacy (IL), defined as the capacity to locate, evaluate and use information to create new knowledge, is a core adult life skill and an extension of the notion of functional literacy [4]. Information literacy is related to information technology skills, but has broader implications for the individual, the educational system, and society. Information literate individuals necessarily develop some technology skills. Information literacy, while showing significant overlap with information technology skills, is a distinct and broader area of competence. Increasingly, information technology skills are interwoven with, and support, information literacy [5]. Improvement of information literacy skills should not only focus on digital resources, but the existence of library as a sources of learning on campus should be directed properly. Furthermore, the strategies need to be designed and implemented by faculty member, librarians, and all of stakeholders especially lecturers to guide students in improving information literacy skills based on library and digital resources.

II. MATERIALS AND METHOD

This research was conducted at the Department of Geography Education with population of active students in lectures amounting to 332. The sample of this study makes up 50% of the total population of 166 students who filled out questionnaires to measure literacy skills as shown in Table 1 below:

TABLE I. NUMBER OF RESPONDENTS

Academic year	Population	%	Sample	
			Male	Female
2016	116	50	22	36
2017	102	50	23	28
2018	114	50	19	38
Total	332			

Measurement of student literacy based on standards and information literacy indicator by UNESCO which is also used by Swiss University includes need the information (standard 1), retrieval the information (standard 2), assessment the information (standard 3), Organisation the information (standard 4), application the

information (standard 5) and responsibility the information (standard 6). Formulation of strategies to improve information literacy based on library and digital resources, which is done by focused group discussion (FGD) technique. The information literacy standard and indicator can be observed in Table 2 below:

TABLE II. INFORMATION LITERACY STANDARDS

Standard	Level of Information Literacy		
	Beginner	*Advanced*	*Expert*
Need	Defines and articulates the information need referring to a defined purpose	Understands the purpose, scope, and appropriateness of a variety of information sources	Selects and uses diverse sources of information to inform decisions
Retrieval	Selects efficient methods or tools for finding information	Constructs and implements effective search strategies	Obtains information using appropriate methods
Assessment	Defines and applies criteria for evaluating information	Assesses the usefulness of the information obtained	Re-evaluates the nature and extent of the information need, reflects on the information seeking process and revises search strategies as necessary
Organisation	Records information selected and its sources	Organises, classifies, and stores information using appropriate methods	Shares information with others, keeps up to date with information sources, information technologies, and investigative methods
Application	Applies new and prior information to the creation of new knowledge or a particular product	Communicates the new knowledge or product effectively to others	Revises the creation and communication process of knowledge or product
Responsibility	Acknowledges cultural, ethical, and socio economic issues related to the use of information	Conforms with conventions and etiquette related to the use of information	Legally obtains, stores, and disseminates all kinds of information

III. FINDING AND DISCUSSION

A. *Information literacy competency level*

The measurement of students' literacy abilities was carried out on the 2016, 2017 and 2018 academic years. The ability was classified into 3 levels, namely beginner, advanced and expert. The results of measuring the level of information literacy based on gender in the class of 2016 can be seen in the following table 3, below:

TABLE III. STUDENTS IL COMPETENCY LEVEL IN 2016 ACADEMIC YEAR

Standard	Beginner (%)		Advanced (%)		Expert (%)	
	M	*F*	*M*	*F*	*M*	*F*
1	45	36,11	36,36	38,89	18,64	25
2	50	55,56	18,18	25	31,82	19,4
3	27,27	27,78	54,54	36,11	18,18	36,1
4	27,27	33,33	31,82	25	40,91	41,7
5	36,36	52,78	36,36	30,56	27,27	16,7
6	40,91	47,22	59,09	44,44	0	8,33

Table 3 shows that student's information literacy competency level in the 2016 academic year is quite varied. Standard 1 (defines and articulates the information need referring to a defined purpose) male students were mostly at beginner level (45%) while their female counterparts were on the advanced grid (38,89%). Standard 2 (selects efficient methods or tools for finding information) male (50%) and female (55.56%) students were both at the beginner level. Standard 3 (assesses the usefulness of the information obtained) male (54.54%) and female (36.11%) students were both at the advanced level. Standard 4 (shares information with others, keeps up to date with information sources, information technologies, and investigative methods) male (40.91%) and female (47.7%) students were both at the expert level. Standard 5 (applies new and prior information to the creation of new knowledge or a particular product) male (36.36%) and female (52.78%) students were both at beginner level. Standard 6, female students (47.22%) were at the beginner level (acknowledges cultural, ethical, and socioeconomic issues related to the use of information) while their male counterparts (59.09%) were at the advanced level (legally obtains, stores, and disseminates all kinds of information).

Almost identical to the 2016 academic year, the measurement of information literacy level of the 2017 academic year on all six standards shows that male and female students were at various levels ranging from beginners to experts. At standard 1 both were at the beginner level while at standard 2 there were 47.83% male students of expert level and 59.26% female students of beginner level. At Standard 3, most male students were at the beginner level, while female students (47.83%) were at the expert level. At Standard 4, around 48.15% female students were at beginner level while 39.13% male students were at expert level. At Standard 5, male students (47.83%) and female students (51.85%) both were at beginner level. At the sixth standard, male students (52.17%) were at the beginner level, whereas female students (40.74%) were at the advanced level, as can be observed in the following table 4 below.

TABLE VI. STUDENTS IL COMPETENCY LEVEL IN 2017 ACADEMIC YEAR

Standard	Beginner (%)		Advanced (%)		Expert (%)	
	M	*F*	*M*	*F*	*M*	*F*
1	56,52	51,85	34,78	33,33	8,69	14,8
2	39,13	59,26	13,04	14,81	47,83	25,9
3	47,83	37,04	21,74	40,74	30,43	22,2
4	34,78	48,15	26,09	25,93	39,13	25,9
5	47,83	51,85	21,74	37,04	30,43	11,1
6	52,17	37,04	26,09	40,74	21,74	22,2

Unlike the previous generations, student's information literacy competency level in the 2018 academic year for each standard on average was at the beginner level. Only at the first standard (understands the purpose, scope, and appropriateness of a variety of information sources) third standard (assesses the usefulness of the information obtained), that female students were at an advanced level. Male students, however, had its largest percentage at the beginner level at each standard as shown in the following table 5, below:

TABLE V. STUDENT'S IL COMPETENCY LEVEL IN 2018 ACADEMIC YEAR

Standard	Beginner (%)		Advanced (%)		Expert (%)	
	M	*F*	*M*	*F*	*M*	*F*
1	78,95	42,11	15,79	50	5,263	7,89
2	68,42	52,63	31,58	31,58	5,263	10,5
3	52,63	34,21	26,32	52,63	15,79	13,2
4	63,16	60,53	26,32	21,05	0	18,4
5	84,21	55,26	21,05	39,47	0	5,26
6	68,42	42,11	10,53	50	15,79	7,89

The level of information literacy competency can be shown in the following graph in average for each academic year.

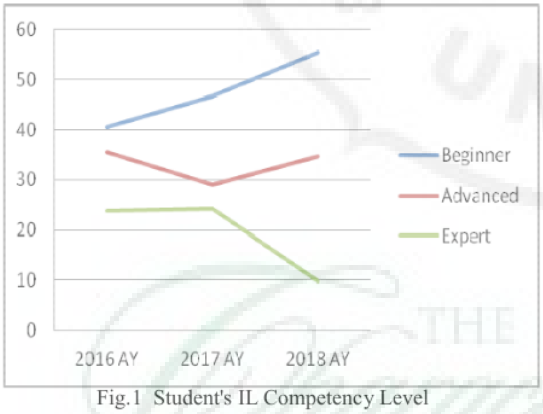

Fig.1 Student's IL Competency Level

From the graph it can be seen that the highest percentage is at the beginner level, followed by the advanced and expert levels. around 40-50% students of the 2016, 2017 and 2018 academic year were at beginner level. This indicates that about half of the students were still at the lowest level of any standard set by UNESCO, despite the fact that information literacy competency is necessary for human to contribute to the society and to be effective lifelong education [1]. The use of information sources will be more effective if students' literacy skills are also high.

B. Strategy to strengthen information literacy based on library and digital resources

Based on research findings, most students were still at beginner level. This indicates the low ability to identify information according to needs, the use of tools and methods of searching, storing, using and disseminating information. For this reason, a strategy is required to improve information literacy competency in lectures as shown below:

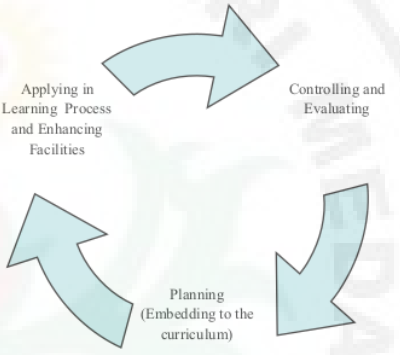

Fig 2. Strategy to Strengthen Information Literacy

Figure 2 shows that the flow of information literacy strengthening in the education world. This strategy starts with containing information literacy in the curriculum such as the curriculum's content, structure, and sequence [1]. This can also be expressed concretely in the teaching materials. This teaching material directs students to use literacy based on library and digital resources. Lecturers must consistently apply the content of the information literacy to each subject so that students will be trained to improve their literacy skills. It doesn't only depend on the role of the lecturer, but also heads of departments and faculties. Similarly, the role of library is no less significant. Guided by faculty and others in problem-based approaches, students reason about course content at a deeper level than is possible through the exclusive use of lectures and textbooks. To take fullest advantage of problem-based learning, students must often use thinking skills requiring them to become skilled users of information sources in many locations and formats, thereby increasing their responsibility for their own learning [5].

Furthermore, various supporting facilities must also be improved. Among them is a library collection of printed and non-printed materials, the convenience of offline and online library services and the ease of internet access such as wifi or campus hotspots. Controlling and evaluating were subsequently carried out in each completed information literacy program. As a basic human right, information literacy program should be discussing

collaboratively by university, faculty, librarians, administrators and others to decide it's assessment methods. This assessment should reach all students and consolidate learning goals already achieved. It also should make explicit to the institution's constituencies how information literacy contributes to producing educated students and citizens [3].

Therefore, the collaboration of various stakeholders strongly supported the success of the information literacy program, both based on library and digital resources.Through lectures and by leading discussions, faculty establish the context for learning. Faculty also inspire students to explore the unknown, offer guidance on how best to fulfill information needs, and monitor students' progress. Academic librarians coordinate the evaluation and selection of intellectual resources for programs and services; organize, and maintain collections and many points of access to information; and provide instruction to students and faculty who seek information. Administrators create opportunities for collaboration and staff development among faculty, librarians, and other professionals who initiate information literacy programs, lead in planning and budgeting for those programs, and provide ongoing resources to sustain them [5].

IV. CONCLUSSION

Based on the results of the study, it can be concluded that most students were still at the lowest level in terms of information literacy competency. Of all the 6 standards used by Swiss University, the average ability of students was at beginner level, especially in the 2018 academic year. Therefore, there needs to exist commitment and cooperation between various stakeholders, including the university, faculty, study program, library manager, employees and especially lecturers to improve the students' literacy skills. Strategies that can be pursued include planning and integrating literacy programs in the curriculum, implementing an integral and comprehensive program, as well as monitoring and evaluating continuously. Thus, information literacy skills can improve the quality of competitive graduates in the industrial era 4.0.

ACKNOWLEDGMENT

Thanks to all who have been involved in this research, especially to the Rector and Research Institute of Medan State University who have funded this research with a research contract No: 206A/ UN33.8/PL/2018.

REFERENCES

[1] UNESCO, "Towards information Literacy Indicators," Paris, 2008.
[2] C. Bruce, "Information Literacy as a Catalyst for Educational Change: a Backgroud Paper," 2004.
[3] P. Stalder, *Swiss Information Literacy Standards*. 2011.
[4] R. Cats, "Indicators of Adult infromation Literacy," *J.Inf.lit.*, vol. no. 2, pp. 4–18, 2012.
[5] ALA, "Information Literacy Competency Standards for Higher Education," Chicago, 2000.

The Strategy to Strengthen Information Literacy Based on Library and Digital Resources

ORIGINALITY REPORT

19%	8%	11%	13%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to City University Student Paper	1%
2	Submitted to University of South Australia Student Paper	1%
3	Submitted to Mississippi College Student Paper	1%
4	Yohanes Freadyanus Kasi, Ari Widodo, Achmad Samsudin, Riandi Riandi. "Integrating Local Science and School Science: The Benefits for the Preservation of Local Wisdom and Promoting Students' Learning", Research Square Platform LLC, 2022 Publication	1%
5	eudl.eu Internet Source	1%
6	James K. Elmborg. "Information literacy and Writing across the Curriculum: sharing the vision", Reference Services Review, 2003 Publication	1%

7	www.marilia.unesp.br Internet Source	1 %
8	www.semanticscholar.org Internet Source	1 %
9	Submitted to Universitas Bangka Belitung Student Paper	1 %
10	"Information Literacy: Key to an Inclusive Society", Springer Science and Business Media LLC, 2016 Publication	1 %
11	Submitted to Institute of Graduate Studies, UiTM Student Paper	1 %
12	Submitted to Royal Melbourne Institute of Technology Student Paper	1 %
13	Helena Ward. "Engaging the learner: Embedding information literacy skills into a biotechnology degree", Biochemistry and Molecular Biology Education, 09/2007 Publication	1 %
14	Submitted to 87988 Student Paper	1 %
15	Kate Conway. "How Prepared are Students for Postgraduate Study? A Comparison of the Information Literacy Skills of Commencing	1 %

Undergraduate and Postgraduate Information Studies Students at Curtin University", Australian Academic & Research Libraries, 2011
Publication

16	curtin-libraryschool.libguides.com Internet Source	1 %
17	Annemaree Lloyd. "Information literacy practice in academic libraries the higher education landscape", Elsevier BV, 2010 Publication	<1 %
18	Submitted to Tennessee State University Student Paper	<1 %
19	Submitted to Edith Cowan University Student Paper	<1 %
20	Henry Boateng, George Oppong Appiagyei Ampong, Diyawu Rahman Adam, Kwame Simpe Ofori, Robert Ebo Hinson. "The relationship between social interactions, trust, business network, external knowledge access, and performance: A study of SMEs in Ghana", VINE Journal of Information and Knowledge Management Systems, 2020 Publication	<1 %
21	repositorio.ufba.br Internet Source	<1 %

22	Sonja Špiranec, Zdravka Pejova. "Information literacy in South-East Europe: Formulating strategic initiatives, making reforms and introducing best practices", International Information & Library Review, 2013 Publication	<1 %

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	Off		