Information Literacy of Students in the New Normal

BY

Demie S. Borromeo, Jr[1], Wendell C. Cabrera, EdD[2,] Elsie F. Cruz[3], Jenny Rose P. Dalmacion[4], Elizarah C. Valdez[5]

[1,2,3,4,5]La Consolacion University Philippines, Graduate School

Abstract

The study examines information literacy being one of the vital skills of the 21st century. Skills and abilities associated with computer technology, data processing, and connectivity are indications of information literacy inside this discipline of management information technology. In the new normal, information literacy is necessary to equip the students from the dangers of misinformation, disinformation, and truth distortion as societies rapidly increase the number of people connected to the internet and utilizing one or more social media. The method of research utilized in this paper is quantitative research. Online survey using Google forms with an instrument adopted from Montecillo (2022) was conducted. There were 347 respondents who were purposely selected to answer the questionnaire. Data were analyzed using descriptive statistics. The study revealed that age maturity is a factor in having a high level of information literacy. The identified challenges in information literacy vary. College students' challenges consisted of responsiveness, independence, and content knowledge. On the other hand, senior high school students' challenges are in the areas of critical with information, independence, and content knowledge. The junior high school students' challenges are in the areas of content knowledge, critical with information, and responsiveness. The program to be proposed to address the identified challenges in information literacy should be designed differently for college, senior high school, and junior high school students. Although there are similarities in the results, the differences among the respondents should be considered.

1. Introduction

Our brains are exposed to information about ourselves and the world around us from the moment we are born. Along with all the information that surrounds us, the main concern is to sort through it all, organize it, and make sense of what makes it through our perceptual filters and into our social realities. People consume lots of data every single moment through surfing the Internet, receiving phone updates, reading magazines and newspapers, being barraged with advertisements, and being engaged for someone's job or education classes (Cross, 2018).

The Covid-19 pandemic has exposed one thing and that is our need for accurate, reliable information to inform our personal decisions about how to behave in response to this crisis. Due to the current situation, work and school have required many of us to be digitally literate, the ability to effectively leverage those skills has never been more critical than it is now. Successfully applying these skills requires a balance between both digital information literacy's technological and human elements to be most effective (Why Digital Information Literacy Skills Are More Critical Now than Ever - ETS Open Notes, n.d.).

Furthermore, understanding ideas about how to gather and interpret information is particularly vital in the current understanding time, when such development of data available is expanding at an unprecedented rate. According to Kulthau (1987) Information Literacy is defined as "the ability to grasp or use data that is necessary for a routine life, that is, the ability to accurately maneuver a system predicated on a complex quantity of data generated by computers and mass media. Also, Information Literacy able to impart benefits such as students will be able to learn on their own, allowing for well-informed decision-making, an educational resource for professional success, fulfilling corporations' needs for information-literate workers, focusing on the development of self-sufficient researchers, empowering people to keep an eye on news sources for discrimination and misinformation,

encourage pupils in contending with information overload, share ideas for analyzing online material and utilizing Google with caution. Furthermore, according to Setyaningsih et al., (2019), digital literacy is the interest, attitude, and ability of individuals to use digital technology and communication tools to access, manage, integrate, analyze, and evaluate information, build new knowledge, create, and communicate with others to participate effectively in society. According to the Californian University (2000), an informational rational thinker can: a) establish what further evidence is available; b) access information they seek quickly; c) critically appraise information and its origin; d) identify information that would include in one's expertise; e) attain the required purpose, strategically use information; and f) understand the economic, legal, and societal significance of information use, and access and use data ethically and lawfully.

Information literacy is, however, a flow method. It initiates with the planning stage and asserts with the applying stage to enable the reflective observation of the theory. Prasanna (2008) explained that the Learning Cycle model by David Kolb was a cycle that explained the structure whereby people, groups, and entities attend to and no one another's thoughts and feelings, but as an outcome reconfigure one's behaviors. The stages were indeed planning, doing, reflecting, and experiencing or formulating the theory. The system can provide a wide range of information methods and benefits depending on how they are used. Sadeen and Helm (2008) discovered that information quality and system integration influence information system usefulness. Moreover, information quality has a significant impact on extended usage, whereas system integration has a strong influence on exploratory usage.

It is in this regard that the paper seeks to explore the following:
1. Determine the level of information literacy of the respondents.
2. Identify the information literacy challenges of respondents; and
3. Propose a program that will address the challenges identified related to the respondents' information literacy.

2. Theoretical Background

The following presents the critical discussion related to information literacy of students in the now normal:

Development of Management Information System (MIS)
Management Information System (MIS) is a unified integration of man, machine, and procedures to extract information from data and present it in a way that helps in efficient decision-making in an enterprise. MIS provides valuable information on resources, budget, new products, acquisitions, tactics, etc. A typical MIS is designed to study and analyze data from multiple perspectives (Management Information System Development, MIS Solutions, n.d.).

The history of information management can be traced back to the industrial exhibitions of Paris in 1801. There, Joseph Marie Charles Jacquard introduced the world to punch cards.

These cards, which were similar to computer punch cards used throughout much of the 20th century, were used in weaving looms to make intricate patterns in cloth. Jacquard's punch cards could automate the storage and management of the information used to specify how a loom was to be operated.

The use of punch cards expanded in the following decades and in the 1880s to compile information. Cards were "programmed" with information by punch-card machines, and other machines would process these cards, tally them, and print out the results.

By 1911, IBM emerged, then called the Computing-Tabulating-Recording Company. By this time, punch cards were used for recording and storing all sorts of information, including time tracking and recording weights on scales. Even the U.S. Census was using punch cards to manage its information.

When computers began to emerge in the 1940s and 1950s, punch cards were replaced by magnetic storage media like tapes and disks. These storage devices greatly increased the speed of calculating data Consequently, MIS began to develop for accounting.

From the 1970s to the early 1990s, as computers became smaller, faster, and more affordable, MIS developed beyond accounting to other business areas, like inventory systems, sales, marketing, manufacturing processes, and engineering.

Companies then began upgrading their systems so that different department systems could communicate with each other. By the end of the 1990s, even small businesses could afford integrated information systems and even connect different office systems using the internet. Today, any computer system designed to help make informed management decisions can be called an MIS (Weedmark, 2009).

Mukhtar et al., (2020) mentioned that information and communication technologies have developed rapidly in business growth. The geographical outreach of the internet and the widespread global adoption of high technology provide educational institutions with unprecedented opportunities to increase their offerings. This technology has changed the way customers look at information and how to use it.

De Santis & Presti (2018) as cited by Mukhtar et al., (2020) stated that many organizations begin to realize intellectual capital in developing information systems that should add to their market value. Because knowledge and maintenance of experience are sources of intellectual capital and knowledge management becomes very important for organizations.

Twenty-First Century Education and MIS
The 21st century is a period of technological advancement in information and communication. This is the age of big data processing, wireless internet connectivity, cloud computing, and robotics. Education is concerned with the knowledge and skills relevant and appropriate for the 21st-century world

industry (Hallerman, 2019). Management Information systems is an emerging discipline that focuses on the study of computer technology concerning individuals, organizations, and society's institutions. Through MIS, the collection and processing of data and the delivery of services are easier and more efficient (Texas A&M University, 2022). There was already MIS in the 1990s but the 21st century highlights its existence as one of the most important fields.

21st-century education aims to train students to acquire learning, literacy, and life skills to survive and become an essential workforce. Learning skills consist of critical thinking, creativity, collaboration, and communication. Literacy skills consist of information, media, and technology. Life skills include flexibility, leadership, initiative, productivity, and social skills (Applied Educational Systems, 2022).

Technological advancement in information and communication technology will soon replace manual work in the industry. Many job items will be redundant because of the emergence of new technologies. People will shift jobs from manual to computerized. Because of these changes, every person must be knowledgeable of MIS and possess 21st-century skills, specifically technological, media, and information literacy.

The New Normal

In 2019, the world faced the greatest challenge of the 21st century when a novel coronavirus was detected in China and rapidly spread throughout the world as a pandemic. The novel coronavirus which originated from animals mutated and became contagious to humans. It attacks the respiratory system. Since it is a novel virus, no human being on earth has developed an immunity against it and there is no vaccine or medicine invented to prevent or cure the disease. The virus was named by the World Health Organization as SARS-CoV-2 - COVID-19 in March 2020 (World Health Organization, 2020).

Every day, hundreds of thousands of people get infected and thousands of them die. The economy of every country plunged as a result of shutting down industries. People suffered not only physical illnesses because of the existing pandemic but also mental health disorders such as anxiety and depression. Self-harm and suicide rates have increased. Mental health disorders during pandemics increased due to institutional implementation of uncommon practices of societies such as social distancing, segregation, and 14-day quarantine. In addition, many people were subjected to stigma due to ignorance about COVID-19. People were forced to stay at home with only the technology at hand as their temporary universe. Classes are online, workers are working at home using their computer technology and internet connectivity. Misinformation, disinformation, and politically motivated truth distortion in social media and mass media added further injury.

COVID-19 will never leave. Now is the time to adapt to this reality. It is called the "new normal". The pre-pandemic normal is just history. Now, normal is living in the time of

pandemic and post-pandemic. People have already invested in computer technology also societies enhance their internet connectivity. Compared to pre-pandemic times when internet connectivity was slow, now is a little bit faster. The government, organizations, and institutions have already adopted mechanisms considering COVID-19 and the technology at hand. Schools have been using blended learning where they blend the traditional face-to-face classes with synchronous online classes and asynchronous activities.

The "new normal" is a challenge to everyone as there are a lot of unexplored things to be discovered and experienced. Information literacy is an essential skill during this time to survive the challenges brought by this era.

Information Literacy of Students

Information literacy is related to information technology skills but has broader implications for the individual, the educational system, and for society. Information technology skills enable an individual to use computers, software applications, databases, and other technologies to achieve a wide variety of academic, work-related, and personal goals. Information-literate individuals necessarily develop some technology skills (Information Literacy Competency Standards for Higher Education, n.d.)

According to Ahmad (2017), information literacy is common to all levels of education, learning environments, and discipline, and the research conducted in it showed that IL is gradually attracting the educational institutions and stakeholders in Pakistan but it still needs more consideration on an urgent basis in all fields and at all levels of studies. UNESCO (2009) has presented information literacy as a means to "empower people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals".

In the Southeast Asian region, the Philippines was one of the first to include information literacy in the curricula of basic education, particularly at the senior high school level where Media and Information Literacy (MIL) is one of the core courses. At the tertiary level, MIL is integrated into the General Education Curriculum, specifically in Purposive Communication and The Contemporary World (Tuazon, 2020). This initiative of the Philippine government will help enhance the level of students' information literacy which is already a required skill in the now normal setting. Information literacy has been foreseen as necessary to survive in the 21st century where computer technology and connectivity are a way of life. This 21st-century skill will equip students from the dangers of misinformation, disinformation, and truth distortion as societies rapidly increase the number of people connected to the internet and utilizing one or more social media.

Information literacy of the learners is more crucial now than ever. Many of us are becoming accustomed to new methods and perspectives for exchanging information and ideas since our communications are now taking place strictly online through email, video conferencing, and instant messages.

Whether our learners are doing school projects or having virtual meetings, it is important to be able to understand and effectively use the tools we have to continue learning. Students nowadays are leveraging their digital literacy skills as they learn how to use new tools and technologies that enable them to learn and work collaboratively with each other. This change emphasizes both the fundamentally human aspects of the way we communicate and how we can readily adapt our communication skills to suit emerging methods and modes of expression.

As Corpuz (2021) mentioned, "To live in the world is to adapt constantly." In the face of a global crisis, we need to improvise, adapt and overcome. The new normal is still emerging and the vast amount of information available to us may either be to our advantage or vice versa. Our information literacy, particularly that of our students, should be well honed to allow them to make the utmost benefit to the opportunities that surround them, or they themselves may create. Moreover, information skills are vital to the success in education, occupation, and day-to-day communication of all citizens as lifelong learning has become one of the main themes in the higher education sector in the 21st century (Ranaweera, n.d.).

Media literacy is distinctively appropriate to serve as a merging, interdisciplinary structure for this new way of teaching and learning. As we are now catering to the 21st-century learners, when information is available with just one click, it is essential to teach every student the process skills of media literacy from an early age, so that they can be trained to access, explore, assess, create, and participate with media in all its forms. There is now a global demand for media literacy, but there are also insufficient competent educators to teach media literacy since these skills have not often been taught in teacher education programs or in classrooms.

3. Methodology

The quantitative method of research was utilized to determine the respondents' extent of information literacy. Particularly, the researchers used the survey method in the collection of data. The instrument used to collect data was adopted from Montecillo (2022). It is composed of a 14-item questionnaire: two items for Independence, two items for Content Knowledge, one item for Responsive, two items for Critical with information, two items for Technology Savvy, two items for Considerate, two items for Recognize Sources, and one item for Respects Privacy. The eight components consist of information literacy skills. The level of information literacy skills of respondents was assessed using the five-point Likert scale. The research instrument was converted to Google Forms for the online collection of data. It is important to note that the data collection was conducted during the time of COVID-19 pandemic where a limited face-to-face social gathering is still in effect. The data of this study came from 341 respondents composed of 78 Junior High School students, 231 Senior High School students, and 38 college students purposely selected.

The collected data from the three selected schools (Junior High School, Senior High School, and College) were analyzed using descriptive statistics. Specifically, the researchers used the Mean to determine the level of information literacy of the respondents.

4. Empirical Findings/Result

Table 1. *Level of Information Literacy of Junior High School Students*

Items	Mean	Verbal Interpretation
Independent	3.60	High Level
Content Knowledge	3.55	High Level
Responsive	3.50	High Level
Critical with Information	3.55	High Level
Technology Savvy	3.68	High Level
Considerate	3.68	High Level
Recognize Sources	4.01	High Level
Respects Privacy	3.56	High Level
Grand Mean	3.52	High Level

In particular, the first column represented the eight items (Independent, Content Knowledge, Responsive, Critical with Information, Technology Savvy, Considerate, Recognize Source, and Respect privacy), the second column displayed the mean of each item, and the final column showed the verbal interpretation. Table 1 highlighted the information literacy level of junior high school students. However, among the eight criteria, Junior High School students' level of information, recognizing sources, and being technology savvy and considerate placed first and second, respectively. The overall data level for the JHS students was 3.52 with a descriptive rating of high.

The data shows that the recognition of sources garnered the highest mean with 4.01 or High Level. It signifies that Junior High School students are well informed about properly citing sources taken from the internet or printed materials. This skill is necessary in the academe and in the conduct of research or writing scientific papers where plagiarism and copyright infringement are considered unethical. However, the lowest mean recorded is 3.50 or High Level for being responsive.

Table 2 *Level of Information Literacy of Senior High School Students*

Items	Mean	Verbal Interpretation
Independent	3.56	High Level
Content Knowledge	3.52	High Level
Responsive	3.89	High Level
Critical with	3.70	High Level

Information		
Technology Savvy	3.76	High Level
Considerate	4.05	High Level
Recognize Sources	3.68	High Level
Respects Privacy	4.02	High Level
Grand Mean	3.77	High Level

The information level of Senior High School students was presented in Tables 2. The items, SHS Mean, and verbal Interpretation are reported in three columns. The considerate item, with a mean score of 4.05 and a high verbal interpretation, ranked first out of the eight items, while the respect for privacy item, with a mean score of 4.02 and a high verbal interpretation, ranked second. As a result, the students in senior high school garnered an overall mean of 3.77 with a high verbal interpretation.

The grand mean of Senior High School students of 3.77 or High Level is better than the grand mean of Junior High School students with only 3.52 or High Level. There are some factors that may be contributory to this such as maturity and curriculum. Senior High School students are older in age than Junior High School students, and the Senior High School curriculum prepares them to be information literate. One of the courses included in the curriculum of Senior High School is the Media and Information Literacy (MIL). However, the item on Content Knowledge garnered the lowest mean of 3.52 or High Level in the Senior High School.

Table 3 *Level of Information Literacy of College Students*

Items	Mean	Verbal Interpretation
Independent	4.01	High Level
Content Knowledge	3.97	High Level
Responsive	4.08	High Level
Critical with Information	4.2	High Level
Technology Savvy	4.26	Very High Level
Considerate	4.36	Very High Level
Recognize Sources	4.18	High Level
Respects Privacy	4.47	Very High Level
Grand Mean	4.19	High Level

The informational level of college students was shown in Table 3. The item Respect Privacy, which received a mean score of 4.47 and a very high verbal interpretation, emerged in first among the eight items. The item Considerate, which received a mean score of 4.36 and a very high verbal interpretation, came in second, and the item Being a Technology Savvy, which received a mean score of 4.26 and a very high verbal interpretation, came in third. Overall general information level for college was 4.19, which was high.

The highest recorded mean of college students is 4.47 or Very High Level for Respect for Privacy. It means that college students value privacy so much. Having a very high level on Respect for Privacy also signifies that college students are more knowledgeable on the data privacy act compared to Junior and Senior High School students. However, the lowest mean of college students is in the area of Content Knowledge with 3.97 or High Level. Both Senior High School students and College students recorded the lowest mean in Content Knowledge but they differ as the College students garnered the higher mean in Content Knowledge compared to Senior High School students.

Table 4 *Level of Information Literacy of Respondents, Mean Score and Verbal Interpretation*

Respondents	Mean Score	Verbal Interpretation
College Students	4.19	High level
Senior High School Students	3.77	High level
Junior High School Students	3.52	High level

The study respondents, mean score, and verbal interpretation were reported in table 4. In general, all of the respondents had a high level of information literacy, as indicated by the table, where it showed that college students happened to come in first with a mean score of 4.19, followed by students in the senior high school with a mean of 3.77, and subsequently students in the junior high school with a mean of 3.52.

All levels got High Level of information literacy, but college students got the highest grand mean. Maturity in age and curriculum can be factors and edge of college students compared to the two other levels in terms of grand mean.

Table 5 *Challenges in Information Literacy*

Respondents	Items	Mean	Verbal Interpretation
College	Responsive	4.08	High level
	Independent	4.01	High level
	Content Knowledge	3.97	High level
Senior High School	Critical with Information	3.70	High level
	Independent	3.56	High level
	Content Knowledge	3.52	High level
Junior High School	Content Knowledge	3.55	High level
	Critical with Information	3.55	High level
	Responsive	3.50	High level

Table 5 reflects the challenges in information literacy of the respondents. The respondents from the collegiate level recorded the bottom three based on the Mean. The challenges of college students are responsive with a mean of 4.08 or High level, independent with a mean of 4.01 or High level, and content knowledge with a mean of 3.97 or High level.

The challenges of senior high school students are a little different from college students. Senior high school students' challenges in information literacy consist of critical information with a mean of 3.7 or High level, followed by independence with a mean of 3.56 or High level, and content level with a mean of 3.52 or High level. College and senior high school students only differ on one component of information literacy. College students recorded responsiveness as a challenge while critical with information for senior high school students.

The challenges of junior high school students consist of content knowledge with a mean of 3.55 or High level, Critical with information with a mean of 3.55, and responsiveness with a mean of 3.5. Junior and senior high school students differ only in one item which is responsiveness.

Due to differences between the challenges in information literacy of the three sets of respondents of this study, any intervention or program that will be implemented to address such challenges should not be the same across all levels of education.

5. Discussion

Mallari et. al 2017, stated that high school students are accustomed to use computers in their real activities and use the Internet to fulfill individual needs, but they find it difficult to find and analyze the information for their academic tasks. The results of the study endorse the need for establishing an online information literacy lesson as well as for embedding literacy instruction within middle school. As a result, a realist and Big6 design web-based information literacy lesson is being created. Moreover, according to competency theory, individuals who have poor capabilities in a given topic tend to overestimate their own ability level and struggle to recognize others' proficiency. (Gross and Latham, 2007).

Furthermore, content Knowledge is necessary because it affects the belief system of a person. It is a skill to discern whether information is true and necessary. A person can only be knowledgeable of content when he/she can recognize factual and fictional information, has the ability to validate information, and is able to get information only from reliable sources available. However, according to the study by Reddy et al. (2022), 81% of the students assessed reported information literacy levels that were from average to above average. The capability of an individual to collaborate and share data securely online, the capability of sharing files securely, and the capacity to access the credibility of any resource assessed on the digital platform were the key indicators of information literacy.

In another study, the findings reported in the First Year Experience Survey: Information Literacy in Higher Education

(2017), stated that the ability to evaluate sources for reliability was ranked as the top challenge for first-year students by educators at both community colleges and four-year colleges and universities. Students at four-year institutions were also perceived to be unaware of library resources and struggled to find appropriate sources for their assignments. Students in two-year schools lacked prior information literacy experience, such as using an academic library or completing research projects. Leeder and Chirag (2016) investigated the effect of critical source evaluation on student online search behavior and results in about there study. The study used an experimental design in which participants in the treatment condition performed a prompted critical evaluation of a set of provided sources, while those in the control condition reviewed them without any prompts. After that, participants in both conditions searched the internet for sources on an assigned research topic. Server log data and survey responses from participants were analyzed quantitatively and qualitatively to determine the impact of the intervention, guided practice in critical evaluation of online information, on their search behavior. The study's findings indicated that participants in the treatment condition who engaged in the prompted evaluation of sources performed better on most measures of search behavior and seemed more equipped to conduct efficient searches and finish their group assignments. Discussion is held regarding the implications for educators and librarians who teach information literacy skills.

Bruce (2004) concluded that it is essential to strengthen people's capacities to ensure that they can take part in shaping the development of the global information society in order for the new information infrastructure to aid development by the people, for the people, and of the people. According to the University of Bristol, academics need to become more self-aware of their own continual learning and reflective of it. The prospects afforded by the development of a lifelong learning framework will depend on how willing academics are to shift their perspective from "having to teach their pupils everything."

6. Conclusions

Age maturity is a factor in having a high level of information literacy. Although all respondents got high levels of information literacy, college students got the highest mean, followed by senior high school students and the least is the junior high school students. Also, it can be noted that curriculum plays a vital factor in the information literacy of students.

The identified challenges in information literacy vary. College students' challenges consist of responsiveness, independence, and content knowledge; senior high school students' challenges are in the areas of critical with information, independence, and content knowledge; and, the junior high school students' challenges are in the areas of content knowledge, critical with information, and responsiveness.

The program to be proposed to address the identified challenges in information literacy should be designed differently for college, senior high school, and junior high

school students. Although there are similarities in the results, the differences among the respondents should be taken into account.

The program that will address the identified challenges in information literacy of respondents should be in the form of curricular revision. In such a case, integration to appropriate courses or subjects on the topics of information literacy should be considered. In particular, the course or subject integration should focus on reinforcing students' capabilities in the areas of responsiveness, independence, content knowledge for college-level students; critical with information, independence, and content knowledge for senior high school students; and, for junior high school students, content knowledge, critical with information and responsiveness. Aside from curricular revision that will lead to course or subject integration, co-curricular activities such as seminars/webinars and training may be designed to supplement instructions.

7. Acknowledgments

References

1. Applied Educational Systems. (2022). *What Are 21st Century Skills?* Retrieved from AES Website: https://www.aeseducation.com/blog/what-are-21st-century-skills
2. Bruce, Christine (2004) Information Literacy as a Catalyst for Educational Change. A Background Paper. In Danaher, Patrick Alan, Eds. Proceedings "Lifelong Learning: Whose responsibility and what is your contribution?", the 3rd International Lifelong Learning Conference, pages pp. 8-19, Yeppoon, Queensland.
3. California State University, *Commission on Learning Resources and Instructional Technology, Work Group on Information Competence*. Information 13 Competence in the CSU: A Report. CSUN, I995 California State University. Retrieved from https://scholarworks.csun.edu/bitstream/handle/10211.2/489/fact_sheet.html?seque
4. Corpuz, J. C. G. (2021). Adapting to the culture of "new normal": *An emerging response to COVID-19.* Journal of Public Health, 43(2). https://doi.org/10.1093/pubmed/fdab057
5. Cross, B. (2018). *What is Information Literacy? - Definition & Importance.* In Study.com.
6. https://study.com/academy/lesson/what-is-information-literacy-definition-importance.html
7. First Year Experience Survey: *Information Literacy in Higher Education.* (2017). Available from http://lj.libraryjournal.com/downloads/2017-first-year-experience-survey/
8. 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, Volume 29, Issue 3, Pages 332-353, ISSN 0740-8188, doi.org/10.1016/j.lisr.2007.04.012.
9. Hallerman, S. (2019). *What is a 21st-century education?* Retrieved from Battelle for Kids Website:https://www.battelleforkids.org/learning-hub/learning-hub-item/what-is-a-21st-century-education
10. Information Literacy Competency Standards for Higher Education. (n.d.). Retrieved June 8, 2022, from https://repository.arizona.edu/bitstream/handle/10150/105645/standards.pdf?sequence=1&isAllowed=y
11. Kuhlthau, C.C, (1987). Information Skills for an Information Society: *A review of Research. Eric Clearinghouse on Information Resources.* Syracuse, NY. Retrieved from https://eric.ed.gov/?id=ED297740
12. Leeder, C., and Chirag, S. (2016) *Practicing Critical Evaluation of Online Sources Improves Student Search Behavior.* The Journal of Academic Librarianship, Volume 42, Issue 4, Pages 459-468, ISSN 0099-1333, doi.org/10.1016/j.acalib.2016.04.001.
13. Mallari, A., et al. (2017) Information literacy skills of Greek high-school students: *Results of an empirical survey.* Qualitative and Quantitative Methods in Libraries, [S.l.], v. 3, n. 1, p. 271-281, may 2017. ISSN 2241-1925.
14. Management Information System Development, MIS Solutions. (n.d.). www.flexsin.com. Retrieved June 8, 2022, from https://www.flexsin.com/products-solutions/management-information-system.php
15. Mukhtar, M., Sudarmi, S., Wahyudi, M., & Burmansah, B. (2020). *The Information System Development Based on Knowledge Management in Higher Education Institution.* International Journal of Higher Education, 9(3), 98. https://doi.org/10.5430/ijhe.v9n3p98
16. Ranaweera, P. (2008) *Importance of Information Literacy skills for an Information Literate society.* Retrieved from http://eprints.rclis.org/11956/

17. Ranaweera, P. (n.d.). I*mportance of information literacy skills for an information literate society*. https://core.ac.uk/download/pdf/11884153.pdf

18. Reddy, P., Sharma, B., Chaudhary, K., Lolohea, O., Tamath, R. (2022), "Information literacy: *A desideratum of the 21st century*", Online Information Review, Vol. 46 No. 3, pp. 441-463. doi.org/10.1108/OIR-09-2020-0395

19. Saeed, K. A., and Abdinnour-Helm, S., (2008) E*xamining the effects of information system characteristics and perceived usefulness on post-adoption usage of information systems*. Inf. Manag., doi: 10.1016/j.im.2008.06.002.

20. Setyaningsih, R., Abdullah, A., Prihantoro, E., & Hustinawaty, H. (2019). *Model penguatan literasi digital melalui pemanfaatan elearning*. Jurnal ASPIKOM, 3(6), 1200–1214.

21. Texas A&M University. (2022). *What is mis? | Management information system*. Retrieved from Texas A&M University Mays Business School Website: https://mays.tamu.edu/department-of-information-and-operations-management/management-information-systems/

22. Tuazon, R. R. (2000). Media and Information Literacy Education in Asia*: Exploration of policies and practices in Japan, Thailand, Indonesia, Malaysia, and the PhilippinesMedia andInformationLiteracyEducationin Asia.* Retrieved from UNESCO Website: https://unesdoc.unesco.org/in/documentViewer.xhtml?v=2.1.196&id=p::usmarcdef_0000374575&file=/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach_import_ff77a3ff-cd5a-4703-a513-75731059789f%3F_%3D374575eng.pdf&locale=en&multi=true&ark=/ark:/48223/p

23. UNESCO. (2009). Information Literacy: *Training-the-trainers in information literacy*. Retrieved 15 Aug 2014, from http://portal.unesco.org/ci/en/ev.php-URL_ID=25623&URL_DO=DO_TOPIC&URL_SECTION=201.html

24. Weedmark, D. (2009). *The History of Management Information Systems*. Bizfluent. https://bizfluent.com/about-5444925-history-management-information-systems.html

25. *Why Digital Information Literacy Skills Are More Critical Now Than Ever - ETS Open Notes.* (n.d.). Open Notes. https://news.ets.org/stories/why-digital-information-literacy-skills-are-more-critical-now-than-ever/

26. World Health Organization. (2020, June). *Transmission of SARS-CoV-2: implications for infection prevention precautions*. Retrieved from WHO Website: https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions