BIS INFORMATION TECHNOLOGY AND COMPUTER SCIENCE

Volume 2 2025 | DOI: 10.31603/bistycs.181
6th Borobudur International Symposium on Science and Technology (BIS-STE) 2024

UNIMMA PRESS
Universitas Muhammadiyah Magelang

Using ellis model for the analysis of information seeking behavior about digital literacy

Bagus Ikapraja[1,2*], Joko Siswanto[1], Firga Ariani[1], Sugianto[1]

[1] Politeknik Keselamatan Transportasi Jalan, Tegal 52125, Indonesia
[2] Universitas Terbuka, Tangerang Selatan 15437, Indonesia
[*]Corresponding author email: bagusikapraja@pktj.ac.id

Abstract

Essential skills must be possessed in line with the development of information and communication technology to search, evaluate, and use information about digital literacy. The contribution of information seeking behavior regarding digital literacy that is less than optimal has an impact on the quality of knowledge, learning, research and self-development obtained by students in higher education. Analysis of information seeking behavior related to digital literacy by students is proposed to improve the quality of education, overcome the spread of information that is not credible, and support competency development. The Ellis model was used for analysis based on data collection with questionnaires from 864 students. 24 questionnaires with 4 answer choices calculated the percentages for 6 interpretations. The analysis produces indicators with interpretations of Generally (browsing and ending), Mostly (starting, extracting, and monitoring), More than Half (differentiating), and Less Than Half (chaining and verifying). The highest level of digital literacy information seeking behavior occurs in final year students who are taking their final assignments, while the lowest occurs in initial level students. Chaining and verification indicators are the basis for creating strategies regarding digital literacy information seeking behavior to improve interpretation. Analysis provides an overview of information seeking behavior, supports effective strategic decision making, and supports the development of technology-based skills.

Keywords

Ellis model, Digital literacy, Behavior, Information seeking

Published:
April 28, 2025

Selection and Peer-review under the responsibility of the 6th BIS-STE 2024 Committee

Introduction

One of the core competencies needed to adapt to global dynamics in the era of industrial revolution 4.0 and society 5.0 is digital literacy [1], such as the use of big data, artificial intelligence, and technology-based work systems [2]. Successfully facing challenges in a world of work that is increasingly integrated with technology supported by digital literacy. One of the key components that supports success in various fields and social interactions is digital literacy which goes hand in hand with increasing

dependence on technology and digital information in various aspects of life [3]. Digital literacy is a basic competency that is mastered by every individual which includes technical operational capabilities of technological devices and the ability to search, transmit, manage and use information ethically and effectively [4]. This ability is crucial given the condition that modern society relies heavily on digital information to support daily activities. Essential skills must be possessed in line with the development of information and communication technology to search for, disseminate and use information about digital literacy [5].

The development of information technology has changed the way human access and utilize information [6]. The ability to use digital literacy includes the ability to search for relevant information, understand digital content, and use this information productively and ethically [7]. Challenges are faced in determining appropriate keywords, evaluating the validity of information, and distinguishing between credible information and misinformation or hoaxes [8]. Dependence on search engines or social media as the main source of information is also often an obstacle, considering that not all information available on these platforms is reliable [7]. A systematic lack of digital literacy education is often the main factor causing the lack of effective use of digital information [9][10]. Efficient and credible information search can help prepare to face the challenges of the technology-based world of work [11][12]. Understanding is necessary to verify sources of information, avoid plagiarism, and use information in a manner that complies with regulations. Searching for digital literacy information does not always run optimally [13].

Information seeking behavior has become an important aspect of digital literacy in an era of increasingly advanced technology [14]. This is often driven by a preference for ease of access over credibility. Many rely more on social media, blogs, or search engines such as Google as the main source of information [15]. Not all information available on these platforms has validation and relevance [16]. Lack of ability to determine appropriate keywords, evaluate source credibility, and differentiate valid information from misinformation are the main challenges that influence the effectiveness of information search behavior [17]. The speed and lack of depth in searching for information makes the quality of the information obtained inadequate [18]. Effective and ethical information seeking strategies are not yet fully understood in using digital literacy [19]. Appropriate digital literacy information search behavior can improve critical thinking skills, decision making, and create innovative data-based solutions [20] [21].

Information search behavior problems become obstacles in utilizing digital literacy optimally [22]. This reflects an individual's ability to utilize information effectively in the digital era [23]. Difficulties are experienced in determining relevant keywords, using search operators, and utilizing search platforms such as journal databases or digital libraries [24]. This is due to a lack of understanding of effective information search strategies. Information seekers do not have adequate skills to distinguish valid from invalid information amidst the rise of misinformation and hoaxes [25]. This is due to

difficulties in evaluating the credibility and relevance of information. Choosing a fast but less in-depth way of searching for information as an effort to meet deadlines will result in information obtained that is not optimal. This is due to time constraints and pressure [26]. Formal education often focuses more on material content without paying sufficient attention to information search skills and source evaluation. This is the cause of the lack of structured digital literacy training [27]. These information search behavior problems have a direct impact on the quality of learning and students' readiness to face the challenges of the digital era [19]. Students need to have strong digital literacy skills to compete in a technology-based workplace amidst digital transformation and the development of the revolution [28]. Appropriate information seeking behavior enables students to access information efficiently and process it into useful knowledge for decision making and innovation [29][30]. The contribution less than optimal information seeking behavior on digital literacy has an impact on the quality of knowledge, learning, research, and self-development obtained by students in higher education [19][31][32].

Digital literacy is a core competency that is very important in the ethical development of technology. Various challenges are often faced such as difficulties in determining keywords, evaluating the credibility of information, avoiding misinformation, and dependence on search engines or social media. The use of a proper digital literacy information search behavior analysis model can produce patterns and obstacles faced by students. Politeknik Keselamatan Transportasi Jalan students face similar problems regarding digital literacy information seeking behavior. Analysis of digital literacy information seeking behavior is proposed using the Ellis model. Data were collected using a questionnaire from all active students. The analysis provides an overview of information seeking behavior, supports effective strategic decision making, and supports the development of technology-based skills. The results of the analysis can be used as a basis for compiling digital literacy programs by management for students.

Method

The Ellis model conceptual framework is used to understand the digital literacy information seeking behavior of Politeknik Keselamatan Transportasi Jalan Students. The Ellis model identifies a series of main activities carried out by individuals to seek information which is used as a basis for understanding information seeking behavior that occurs in various contexts [33][34]. The model is dynamic and does not always have to be followed linearly, consisting of starting, chaining, browsing, differentiating, monitoring, extracting, verifying, and ending [35][36][37]. The 8 indicators in the Ellis model are the basis for compiling a questionnaire with a total of 24 questions distributed to each indicator (**Error! Reference source not found.**). The questionnaire has been tested for validity (24 valid) and reliability (0.83) which will be distributed with google form to 864 active students. 4 answers that can be selected with a likert scale are Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The results of data collection were analyzed by calculating based on respondents' answers. Calculations are

made based on the average for each study program, student level, and the whole of calculating the total score divided by the maximum score multiplied by 100% (Equation 1). The calculation results are the basis for interpreting the 8 indicators in the Ellis model. 6 types of interpretation are determined based on the resulting scores which are included in the score interval for each score. Interpretation of each indicator can be done at the study program, student level, and overall (Table 2).

Table 1. Ellis Model Indicators [33][37]

No	Indicator	Question
1	Starting	3
2	Chaining	3
3	Browsing	3
4	Differentiating	3
5	Monitoring	3
6	Extracting	3
7	Verifying	3
8	Ending	3
	Total	24

Table 2. Interpretation [38][39]

No	Score	Interpretation
1	80% - 100%	Generally
2	60% - 79%	Mostly
3	50% - 59%	More than Half
4	40% - 49%	Less than Half
5	20% - 39%	A Small Portion
6	1% - 19%	Very Little

$$Skor = \frac{Total\ Score}{Minimum\ Score} X100\% \quad (1)$$

Result and Discussion

Results

Data were collected from all active students at the Politeknik Keselamatan Transportasi Jalan from November 11 to November 14, 2024. A total of 864 students filled out the questionnaire which was then processed to display the characteristics of the respondents and the Ellis model analysis. Respondent characteristics consist of gender, student level, study program, and information source. These results are presented to summarize patterns of digital literacy information-seeking behavior.

Discussion

The analysis of students' digital literacy information-seeking behavior across all levels and study programs, based on 8 indicators in the Ellis model, shows varying results. Most students performed well in browsing and ending (generally), followed by starting, monitoring, and extracting (mostly). These findings highlight specific areas for improvement, particularly in chaining and verifying, to enhance overall competencies.

Respondent characteristics consist of gender, student level, study program, and information source. The most gender is male (73%), the most student level is at level 3

(29.75%), and the most study program is in road transportation system engineering (45.84%) (Figure 1). The data collection revealed characteristics of respondents' digital literacy and information-seeking behavior, showing a gender dominance of males, likely due to the technical and field-based nature of road transport safety studies. The smaller percentage of women highlights the need for more inclusive participation. Most respondents are at level 3, a crucial stage in their studies, particularly for Automotive Technology students who are working on their final projects. The dominance of the Road Transport System Engineering program reflects the Polytechnic's focus on developing human resources for road transport and safety. These findings can guide strategies to improve digital literacy and information-seeking behaviors through training, curriculum revisions, and structured guidance.

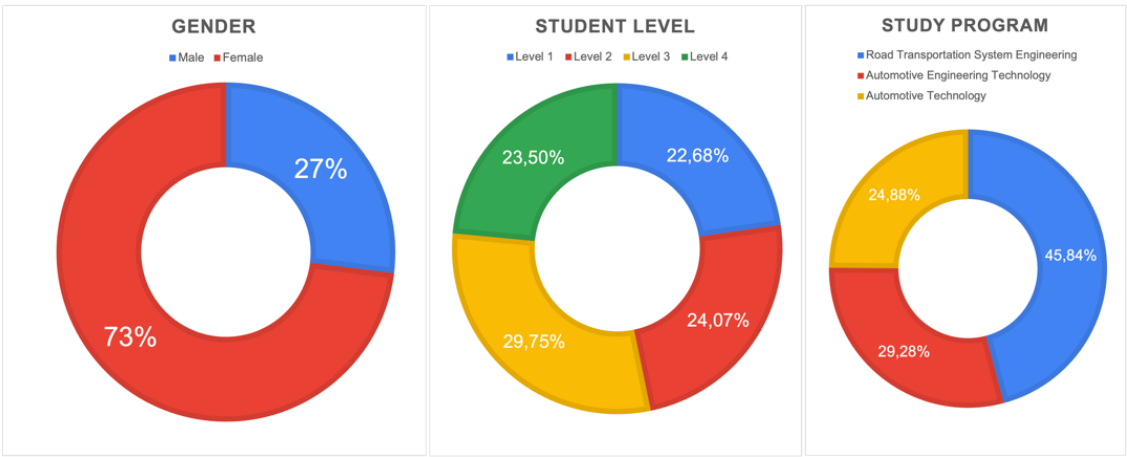

Figure 1. Respondent Characteristics

The last characteristic of respondents is information sources as many as 7 types (academic digital information, general information media, collaborative information, social media information, information search tools, institutional and local information, and multimedia). The most information sources used are information search tools (32.51%) such as Google, Bing, DuckDuckGo, Yahoo, Zotero, Mendeley, and so on. The lowest is collaborative information (0.36%) such as stack overflow, reddit, quora, brainly, and so on (Figure 2). Information search tools such as Google, Bing, DuckDuckGo, Yahoo, Zotero, and Mendeley offer easy access, complete information, and the ability to search for data specifically and quickly. The popularity of information search tools shows that respondents are more likely to use search technology as a solution to meet information needs. Platforms such as Stack Overflow, Reddit, Quora, and Brainly actually have the advantage of providing community-based information with answers or solutions often coming from the direct experiences of other users. The significant difference in the proportion of use of information search tools and collaborative information indicates a preference for relying on information sources that are considered more formal, accurate, and quickly accessible. This also reflects the need to continue to improve digital literacy so that various information sources, including collaborative information, can be optimally utilized. These results provide valuable insights into information search patterns that can form the basis for developing

strategies to improve the accessibility and effectiveness of various types of information sources.

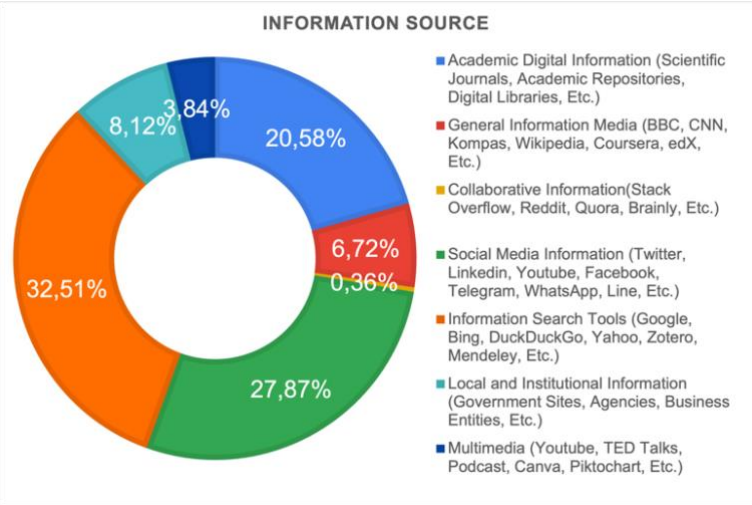

Figure 2. Information Source

Digital literacy information-seeking behavior is generally consistent across student levels, with level 3 and 4 students performing better than level 1 and 2 students, particularly in browsing and ending indicators. Level 1 students showed the weakest performance in chaining. The Automotive Technology program had the lowest performance in verifying, which was consistent across all study programs. The Road Transport System Engineering program generally outperformed other programs in most indicators and final results, indicating stronger digital literacy information-seeking behavior (Figure 3). Students' digital literacy information-seeking behavior varies based on education level and study program, with distinct patterns observed in different indicators. The starting indicator shows consistent patterns in initiating information searches, while the chaining indicator reflects a lack of experience or low digital literacy among new students. Levels 3 and 4 students perform better in browsing and ending indicators, showing improved ability to explore and conclude information searches. The Automotive Technology program recorded the worst results in verifying, indicating a need for stronger focus on evaluating information reliability across all programs. The Road Transportation Engineering program performed better, likely due to a more integrated curriculum and intensive guidance on information search skills. Challenges in chaining and verifying indicate the need for enhanced digital literacy training, including integrating information verification skills, providing early digital literacy education, and sharing best practices to improve overall student performance and competency in the digital era.

The analysis of students' digital literacy information-seeking behavior across all levels and study programs, based on 8 indicators in the Ellis model, shows varying results. Most students performed well in browsing and ending (generally), followed by starting, monitoring, and extracting (mostly). Over half of the students showed proficiency in differentiating, while fewer excelled in chaining and verifying, particularly at levels 1 and 2. Chaining and verifying indicators were rated as "very little" in some study programs.

Overall, the final results showed no "small" or "very little" interpretations, with the Politeknik Keselamatan Transportasi Jalan students achieving a majority interpretation of "more than half" in their information-seeking behavior (Figure 4). The digital literacy information-seeking behavior of students at the Politeknik Keselamatan Transportasi Jalan, analyzed using 8 indicators from the Ellis model, shows varying strengths and weaknesses. Overall, students are generally capable of accessing, evaluating, and using digital information, but this ability is not evenly distributed across all aspects. They perform well in browsing and ending, indicating success in exploring and utilizing information. Their abilities in starting a search, monitoring information, and extracting key points are also good, though improvements in efficiency are needed. The ability to differentiate relevant information is intermediate, likely due to challenges in identifying credible sources. Chaining and verifying indicators show lower results, indicating difficulties in systematically following information paths and evaluating information reliability. New students, in particular, require more guidance in mastering digital literacy. Programs that perform better likely benefit from a curriculum focused on the active and analytical use of digital information sources.

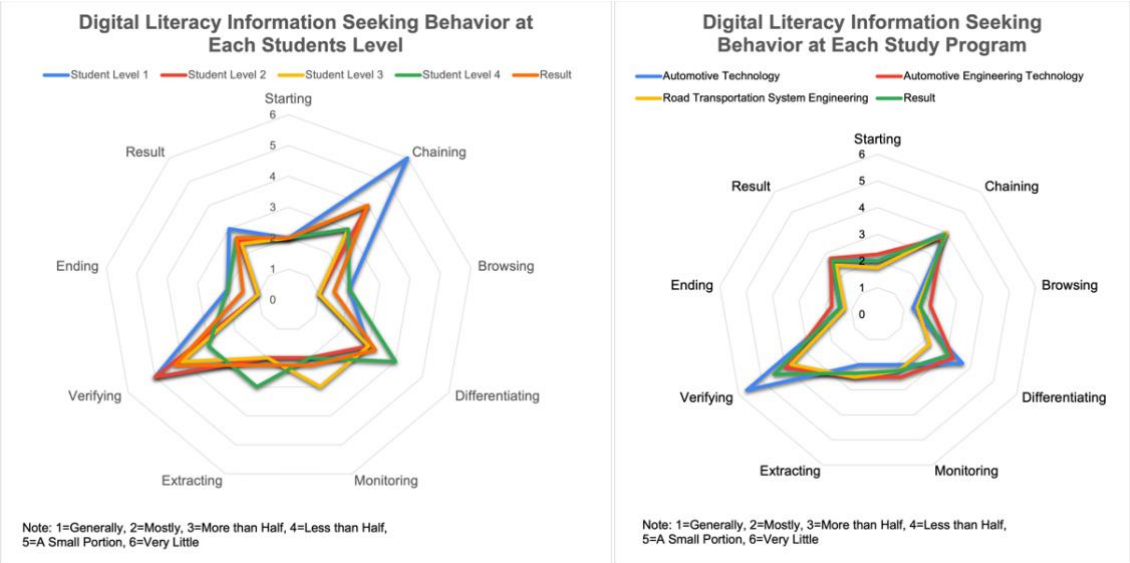

Figure 3. Digital Literacy Information Seeking Behavior at Each Student Level and Study Program

Increasing the behavior of searching for digital literacy information by students can be done with several strategies. Digital literacy training by providing special training that focuses on aspects of information verification and structured searches. Integration into the curriculum by integrating digital literacy skills into courses to increase their relevance and application. Mentoring for early-level students by helping new students understand effective information search strategies early on. Strengthening digital infrastructure by providing access to reliable digital resources to support student learning processes. The Politeknik Keselamatan Transportasi Jalan can help students improve their digital literacy, so that they are able to compete and contribute in an increasingly complex information era. These steps are expected to improve the behavior of searching for digital literacy information by students as a whole, supporting academic and professional success in the future.

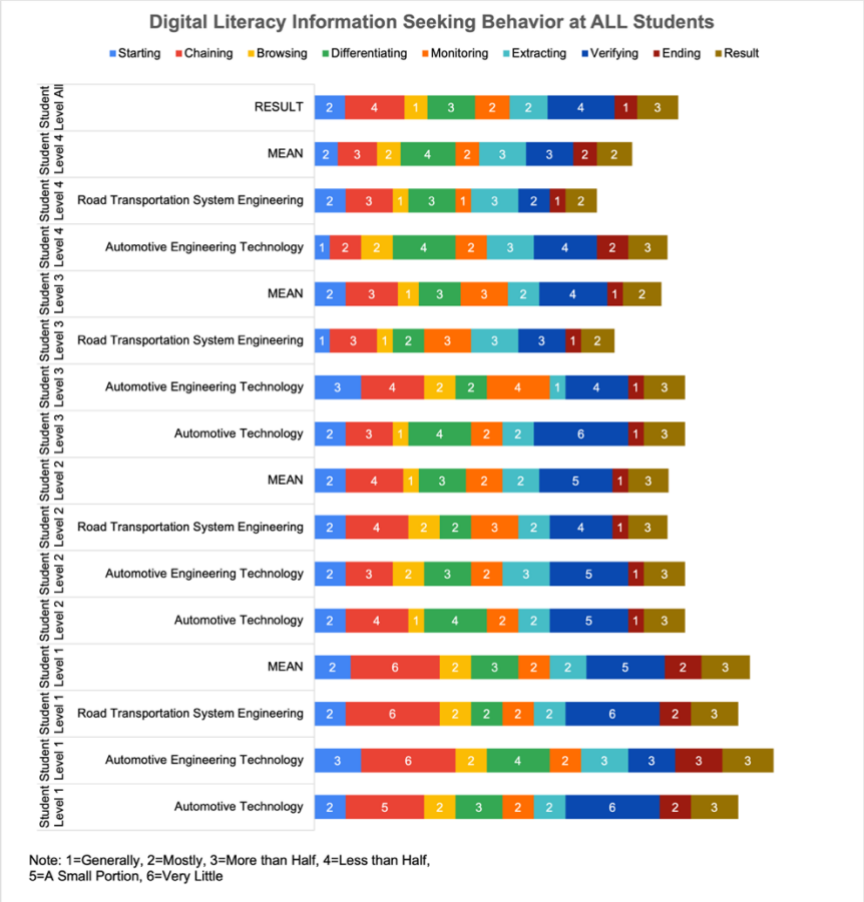

Figure 4. Digital Literacy Information Seeking Behavior at All Student

Conclusion

Data collection from 864 students resulted in respondent characteristics in the form of a majority of male students (73%), the most students at level 3 (29.75%), the most students in the study program in Road Transportation Systems Engineering (45.84%), and the most sources of information using information search tools (32.51%). Analysis of digital literacy information search behavior using the Ellis model with 8 indicators. This behavior at the student level with the final result of the interpretation of mostly. The road transportation systems engineering study program has a better interpretation of most indicators compared to other study programs and the final results. The overall final results of the digital literacy information search behavior by Politeknik Keselamatan Transportasi Jalan Students with the interpretation of more than half, and there is no interpretation of a small portion and very little. The results of the analysis show various patterns that reflect the strengths and weaknesses of digital literacy information search behavior by students. Strategies need to be implemented so that digital literacy information search behavior by students can improve overall, support academic and professional success in the future.

Acknowledgement

This work is fully supported and facilitated by the Politeknik Keselamatan Transportasi Jalan and Universitas Terbuka.

References

[1] M. Magesa, J. Jonathan, and J. Urassa, "Digital Literacy of Smallholder Farmers in Tanzania," *Sustainability*, vol. 15, no. 17, p. 13149, Sep. 2023, doi: 10.3390/su151713149.
[2] Hartono, *Kompetensi literasi informasi perpustakaan: membangun budaya literasi digital bagi generasi milenial*, 1st ed. Jakarta: Sagung Seto, 2019.
[3] U. Rahmi, A. Azrul, and R. D. Mahande, "The Prototype of Blended Learning's Support System to Improve the Pre-Service Teacher's Digital Literacy," *Journal of Educators Online*, vol. 19, no. 3, Sep. 2022, doi: 10.9743/JEO.2022.19.3.5.
[4] Winisudarwanti, *Literasi digital di perpustakaan 4.0 : kontribusi layanan perpustakaan pada literasi digital*, 1st ed. Sukoharjo: CV. Diomedia, 2019.
[5] H. Purwanta, Bramastia, L. A. S., Mibtadin, and D. A. Kurniawan, *Dasar literasi informasi digital*, 1st ed. Klaten: Lakeisha, 2022.
[6] R. Rodin, *Informasi dalam Konteks Sosial Budaya*, 1st ed. Depok: PT. RajaGrafindo Persada - Rajawali Pers, 2020.
[7] I. Cintamulya, L. Mawartiningsih, and W. Warli, "The Effect of Optimizing Digital and Information Literacy in Writing Scientific Articles on Students' Critical Thinking Skills," *AL-ISHLAH: Jurnal Pendidikan*, vol. 15, no. 2, pp. 1987–1998, Jun. 2023, doi: 10.35445/alishlah.v15i2.3062.
[8] K. Y.S. Putri, Vera Wijayanti Sutjipto, Wiratri Anindhita, Nada Arina Romli, Yesi Andriani, and D. Rheva Deianeira, "Digital Literacy Hoax Information in Indonesian Tourism Area," *Journal of Digital Marketing and Communication*, vol. 2, no. 1, pp. 1–11, May 2022, doi: 10.53623/jdmc.v2i1.75.
[9] S. Fan, Z. Yu, X. Zheng, and C. Gao, "Relationship between psychological adaptability and work engagement of college teachers within smart teaching environments: the mediating role of digital information literacy self-efficacy," *Front Psychol*, vol. 14, Jun. 2023, doi: 10.3389/fpsyg.2023.1057158.
[10] M. Mahmood, S. H. Batool, M. Rafiq, and M. Safdar, "Examining digital information literacy as a determinant of women's online shopping behavior," *Information Technology & People*, vol. 35, no. 7, pp. 2098–2114, Dec. 2022, doi: 10.1108/ITP-05-2021-0397.
[11] K. Ali, "Digital Information Literacy Skills among Library and Information Science Professionals in University Libraries of Sindh Pakistan," *Journal of Information Management and Practices*, vol. 2, no. 1, Jul. 2022, doi: 10.52461/jimp.v2i1.1035.
[12] Yugay. E. Viktorovna, "INFORMATION AND DIGITAL LITERACY: THEIR CONCEPTS AND SKILLS," *Innovative Development in Educational Activities*, vol. 1, no. 1, 2022.
[13] Sahiruddin, *Pengembangan Literasi Membaca dan Menulis di Era Digital*, 1st ed. Malang: Media Nusa Creative, 2021.
[14] T. Borgohain and T. Deka, "A case study on awareness of Digital Information Literacy skills among students of Royal Global University Guwahati, Assam," *Journal of Library & Information Science*, vol. 9, no. 3, 2020.
[15] P. M. Yusup, *Ilmu Informasi, Komunikasi, dan Kepustakaan*, 2nd ed. Jakarta: Bumi Aksara, 2022.
[16] A. Shibambu and S. M. Mojapelo, "The status of digital and information literacies in South Africa from 2016 to 2022: a literature review," *Global Knowledge, Memory and Communication*, Mar. 2024, doi: 10.1108/GKMC-04-2023-0142.
[17] P. M. da S. Rocha, F. S. Brasileiro, D. A. de Melo, E. C. Alves, and A. M. P. Almeida, "Resiliência informacional e microcefalia: práticas digitais de busca por informação," *Encontros Bibli: revista eletrônica de biblioteconomia e ciência da informação*, vol. 26, pp. 1–22, Jun. 2021, doi: 10.5007/1518-2924.2021.e78180.
[18] Ramkisan A More, "Digital Information Literacy among Undergraduate Students in Dodamarg," *Journal of Emerging Technologies and Innovative Research (JETIR)*, vol. 8, no. 3, 2021.
[19] J. C. Alex-Nmecha and S. Ejitagha, "An Evaluation of Digital Information Literacy Skills among Undergraduate Students of Library and Information Science in Universities in Nigeria," *Mousaion: South African Journal of Information Studies*, Sep. 2023, doi: 10.25159/2663-659X/12326.
[20] H. Syafrial, *Literasi Digital*, 1st ed. Klaten: Nas Media Pustaka, 2023.
[21] M. S. H. Shobirin, Moh. Safii, and Roekhan, *Pola perilaku pencarian informasi generasi milenial*, 1st ed.

Jember: RFM Pramedia, 2020.
[22] A. Malik and H. K. Dangi, "A Qualitative Inquiry on Information Search Behaviour for Services In India," *Indian Journal of Marketing*, vol. 51, no. 3, p. 8, Mar. 2021, doi: 10.17010/ijom/2021/v51/i3/158059.
[23] A. Farida, *Literasi digital tumbuhkan kreativitas dan peluang*, 1st ed. Sukoharjo: Oase Pustaka, 2022.
[24] M. S. Haider and C. Ya, "Assessment of information literacy skills and information-seeking behavior of medical students in the age of technology: a study of Pakistan," *Inf Discov Deliv*, vol. 49, no. 1, pp. 84–94, Feb. 2021, doi: 10.1108/IDD-07-2020-0083.
[25] D. Bawden and L. Robinson, "'The dearest of our possessions': Applying Floridi's information privacy concept in models of information behavior and information literacy," *J Assoc Inf Sci Technol*, vol. 71, no. 9, pp. 1030–1043, Sep. 2020, doi: 10.1002/asi.24367.
[26] C. Chlomoudis, A. Konstantinou, P. Kostagiolas, and P. Pallis, "Information needs and information-seeking behaviour of maritime students: a systematic literature review using the PRISMA method," *Library Management*, vol. 43, no. 5, pp. 353–369, Apr. 2022, doi: 10.1108/LM-11-2021-0105.
[27] H. Jin, Y. Miao, J.-R. Jung, and D. Li, "Construction of information search behavior based on data mining," *Pers Ubiquitous Comput*, vol. 26, no. 2, pp. 233–245, Apr. 2022, doi: 10.1007/s00779-019-01239-8.
[28] E. Sakellari, O. Okan, K. Dadaczynski, K. Koutentakis, and A. Lagiou, "Digital health literacy and information-seeking on the internet in relation to COVID-19 among university students in Greece," *Computer Methods and Programs in Biomedicine Update*, vol. 5, p. 100139, 2024, doi: 10.1016/j.cmpbup.2024.100139.
[29] A.-F. Abdulai, A.-H. Tiffere, F. Adam, and M. M. Kabanunye, "COVID-19 information-related digital literacy among online health consumers in a low-income country," *Int J Med Inform*, vol. 145, p. 104322, Jan. 2021, doi: 10.1016/j.ijmedinf.2020.104322.
[30] M. Vrdelja, S. Vrbovšek, V. Klopčič, K. Dadaczynski, and O. Okan, "Facing the Growing COVID-19 Infodemic: Digital Health Literacy and Information-Seeking Behaviour of University Students in Slovenia," *Int J Environ Res Public Health*, vol. 18, no. 16, p. 8507, Aug. 2021, doi: 10.3390/ijerph18168507.
[31] A. A. AlDahdouh, "Information search behavior in fragile and conflict-affected learning contexts," *Internet High Educ*, vol. 50, p. 100808, Jun. 2021, doi: 10.1016/j.iheduc.2021.100808.
[32] S. McGrew and I. Chinoy, "Fighting misinformation in college: students learn to search and evaluate online information through flexible modules," *Information and Learning Sciences*, vol. 123, no. 1/2, pp. 45–64, Feb. 2022, doi: 10.1108/ILS-09-2021-0081.
[33] P. Prijana, R. Abdussalam, R. G. Pancasona, and K. A. Sulaiman, "Ellis's model of student information-seeking behavior on Google Scholar," *Jurnal Kajian Informasi & Perpustakaan*, vol. 11, no. 2, p. 305, Dec. 2023, doi: 10.24198/jkip.v11i2.47204.
[34] R. Wahyulianti and Ardoni, "Student Information Searching for Library and Information Science Study Program Padang State University: Ellis Model Analysis," *JPUA: Jurnal Perpustakaan Universitas Airlangga: Media Informasi dan Komunikasi Kepustakawanan*, vol. 12, no. 1, pp. 39–49, Jun. 2022, doi: 10.20473/jpua.v12i1.2022.39-49.
[35] F. A. Rusli, R. N. Indah, and R. Z. A. Syam, "Analysis of the Ellis Model on Information Seeking Behavior of Library Science Department Students of Nusantara Islamic University on the Determination of Internship Places," *TADWIN: Jurnal Ilmu Perpustakaan dan Informasi*, vol. 4, no. 2, pp. 99–120, Jan. 2024, doi: 10.19109/tadwin.v4i2.21003.
[36] A. Kleszczewska-Albińska, "Selected cognitive-behavioural models of behavioural addictions," *Psychiatria i Psychologia Kliniczna*, vol. 22, no. 1, pp. 10–18, Apr. 2022, doi: 10.15557/PiPK.2022.0002.
[37] R. Savolainen, "Contributions to conceptual growth: The elaboration of Ellis's model for information-seeking behavior," *J Assoc Inf Sci Technol*, vol. 68, no. 3, pp. 594–608, Mar. 2017, doi: 10.1002/asi.23680.
[38] A. D. Aulia. S, D. Mei Sari, F. Arsela, S. Fauziah, and F. Purwaningtyas, "Analisis Perilaku Pencarian Informasi Mahasiswa Ilmu Perpustakaan Menggunakan Model Ellis," *Da'watuna: Journal of Communication and Islamic Broadcasting*, vol. 3, no. 2, pp. 821–831, Jan. 2023, doi: 10.47467/dawatuna.v3i2.2815.
[39] W. E. Wulandari, "Perilaku Pencarian Informasi Model Ellis Pada Mahasiswa Fakultas Sains Dan Teknologi Universitas Islam Negeri Maulana Malik Ibrahim Malang," *LibTech: Library and Information Science Journal*, vol. 1, no. 2, Jun. 2022, doi: 10.18860/libtech.v2i1.15947.