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ITMAHuB2023

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2nd International Conference on Information Science, Technology, Management, Humanities, and Business

Hotel UiTM, Shah Alam, Malaysia, 26-27 Sep. 2023

Organised by College of Computing, Informatics and Mathematics, UiTM, Malaysia

Information Literacy Skills in the Use of Electronic Resources among Undergraduate Students at Universiti Teknologi MARA

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Abstract

Information literacy skills are a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information. This study aims to investigate the level of information literacy skills in the use of electronic resources among undergraduate students at UiTM Puncak Perdana and to identify the relationship between information literacy skills and the use of electronic resources. This study was conducted utilizing a quantitative approach, which is a questionnaire prepared with a Google form. There were 218 undergraduate students from the Puncak Perdana campus responded successfully. Findings show that most of the undergraduate students in UiTM Puncak Perdana have a high level of information literacy in the use of electronic resources. This study's findings indicate that information literacy is a critical ability for undergraduate students to have in the digital age.

Keywords: Electronic Resource, Information Literacy Skills, Information Management.

DOI: https://doi.org/10.21834/e-bpj.v9iSI18.5467

1.0 Introduction

Today's technological advancements have altered how information is now available electronically or online. Electronic resources are one of the most popular sources that the academic community uses for their study to find information. Electronic resources known as are information and media that are accessible via the Internet, such as online databases, digital libraries, e-books, and websites (Hendal, 2020). Users must possess certain abilities to access information sources, which has altered the behaviour of information search. Users, particularly students, must learn how to generate, apply, and exchange knowledge for personal development as well as national, international, and peaceful cohabitation. As a consequence, information literacy is critical, particularly for students and researchers. Everyone in society, in general, requires information literacy abilities. The ability to recognise when information is required, find information, evaluate information, and use it successfully is referred to as information literacy. It involves more than just being able to find something in a book or on the internet. It entails the capacity to judge if the information acquired is accurate and trustworthy as well as the capacity to use the knowledge when appropriate (Goode, 2018).

Students who are proficient in information literacy are better able to locate, accurately analyse, utilise, and effectively transmit information in all of its forms. Students can now gain access to a wealth of information through electronic resources. Higher education has increased its usage of electronic resources because they allow rapid and easy access to a variety of information sources, such as online databases and digital libraries (Pinho, Franco & Mendes, 2020). Concerns about students' information literacy skills and their

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DOI: https://doi.org/10.21834/e-bpj.v9iSI18.5467

ability to successfully analyse, utilise, and share knowledge from multiple sources have also been raised as a result of the expansion of internet resources (Bruce, 2002). The ability to "recognise when information is required and to search for, evaluate, and effectively use the relevant information" is known as information literacy (American Library Association, 1989). The success of students in their academic and professional efforts depends on their capacity to successfully obtain, evaluate, and use knowledge to complete assignments, conduct research, and reach informed conclusions (Zawacki-Richter & Neumann, 2006). By examining the information literacy skills of undergraduate students and the connection between these skills and the usage of electronic resources, this study seeks to close this knowledge gap. This study aims to investigate the level of information literacy skills in the use of electronic resources among undergraduate students at UiTM Puncak Perdana and to identify the relationship between information literacy skills and the use of electronic resources.

1.1 Problem statement

The ubiquity of electronic resources is notable, especially among students at UiTM Puncak Perdana, providing a rich tapestry of information at their fingertips. However, the optimal utilization of these resources is predicated on the student's proficiency in information literacy skills - a spectrum of competencies encompassing identifying, obtaining, evaluating, and employing information effectively. According to Abdulai et al. (2021), a dichotomy exists, wherein despite the extensive availability and use of electronic resources, a segment of undergraduate students grappled with leveraging these assets effectively, indicative of a potential gap in information literacy. This scenario underscores the pivotal role of information literacy as a cornerstone for maximizing the benefits of electronic resources. Pragya and Rabindra (2017) posit a direct correlation between information literacy and adeptness in accessing electronic resources, highlighting the potential repercussions of a deficit in such skills. Sahabi et al. (2021) further elucidate that a deficiency in information literacy skills not only impedes the ethical and accurate acquisition and utilization of information but could also be a catalyst for the underutilization of electronic information resources.

While the penetration of electronic resources in the educational landscape is pervasive, there is a discernible lacuna in empirical studies exploring the symbiotic relationship between the development of information literacy skills and the effective utilization of these resources among undergraduates. This study is poised to address this research gap, offering an in-depth exploration of the level of information literacy skills among undergraduate students at UiTM Puncak Perdana and delineating the relationship between these essential skills and the adept utilization of electronic resources. The significance of this inquiry is underscored by its potential to illuminate the interplay between information literacy and electronic resource utilization, thereby contributing to enhanced educational outcomes and fostering a culture of informed and ethical information usage.

1.2 Objectives of the study

The focus of this study is on undergraduate students' information literacy skills in the use of electronic resources. Specifically, the following are the objectives that this research aims to achieve:

i) To determine the level of information literacy skills in the use of electronic resources for undergraduate students at UiTM Puncak Perdana.

ii) To identify the relationship between information literacy skills and the use of electronic resources among undergraduate students in UiTM Puncak Perdana.

2.0 Literature review

2.1 Information literacy skill and use of electronic resources

As technology and advancement in electronic resources are both fast-growing, information literacy is essentially a necessary ability. Students are expected to obtain the necessary information literacy skills as the usage of Internet resources continues to increase, especially within higher institutions of learning. A person should have specific online searching skills to be considered information literate in today's world. These skills include the ability to determine suitable search terminology, construct a logical search strategy, and appropriately evaluate information. The importance of information literacy skills has become increasingly relevant with the exponential growth of information systems and resources (Olubiyo, 2019). As students engage in academic pursuits, work, and other activities, they are likely to encounter a vast array of information sources available through libraries, online databases, and the Internet. Information literacy is the capacity to make efficient and effective use of information sources. In addition to this, it requires the capability of humans to recognize when information is required, as well as how and where it may be obtained, and to make effective use of this knowledge to achieve a particular objective. In the narrowest sense, information literacy is the set of skills that allows one to make effective use of IT and print/electronic information resources. As such, it is a new liberal art that transcends technical expertise and is envisioned as an individual's critical reflection on the nature of information, its technical infrastructure, and its social, cultural, and even philosophical context and impact. There is no simple way to categorize this as a liberal art because it transcends that category.

In addition, for students to be able to make judgments about academic matters and other elements of their everyday lives, they need to have some level of information literacy abilities. Users are expected to improve their information literacy abilities as the use of digital resources continues to skyrocket. According to Adeniran and Onuoha (2018), having these abilities will enable users to make effective and efficient use of the information sources that are available to them. They went on to identify the different skill domains that are at play and categorized them as cognitive, emotive, and physical, which can be translated as thought, attitude, and operation, respectively. Findings from a study by Azubuike and Chukwuemeka (2016) on the effects of electronic information resources on academics'

information behaviour show that professors now spend less time at the library and more time reading online books and journals than they did when physical books were more common. Most researchers say they use broad databases to find what they need, whereas only a few say they use specialized databases.

Odunewu and Aluko (2018) surveyed the use of electronic journals by staff and students at Istanbul University and found that the majority of respondents were in favour of the shift from print to electronic resources because of the many advantages it offers. These findings provide credence to what was discussed. Research institutes and universities have been the focus of numerous studies that examine how researchers, students, and educators make use of electronic resources. Seventy-eight per cent (78%) of respondents said they needed current publication alert services and electronic file supply services since their research activity had become highly dependent on the OPAC, electronic mail, electronic books, electronic reference sources, electronic journals, etc. Adeniran and Onuoha (2018) looked at the accessibility of electronic information and how it was used at a university in Nigeria, applying their research to the setting of underdeveloped countries. A total of 190 students out of the targeted population of 250 answered, for a response rate of 76%. According to the findings of the study, users of electronic resources gained a great deal of value from these resources, including enhanced academic achievement as a direct result of access to high-quality information and access to a greater variety of information sources. This also shows that the ability to effectively search and access electronic information is closely tied to an individual's level of information literacy skills.

In an age where technology and information systems are rapidly advancing, a high level of information literacy skills is becoming increasingly important. The majority of information required for research can now be obtained from electronic sources, and students must possess the necessary information literacy skills to access this information. 'Information literacy skills are imperative for accessing information in this generation of technology advancement where most of the information needed for research can be retrieved from electronic sources' (Adeleke and Emeahara, 2016). Students must tend towards lifelong learning by acquiring IL skills to keep up with the rapid growth of information in the information society and advance themselves. This is because 'students' efforts to complement their work with electronic resources may be limited due to a lack of skills (Ekenna and Iyabo, 2013), as there is a positive correlation between the two variables. A study by Oyeniyi (2013) on 'Information retrieval skills and use of electronic resources among information professionals in South-Western Nigeria' revealed a significant positive correlation between the information professionals' retrieval skills and their utilization of online resources."

2.2 Theoretical Framework

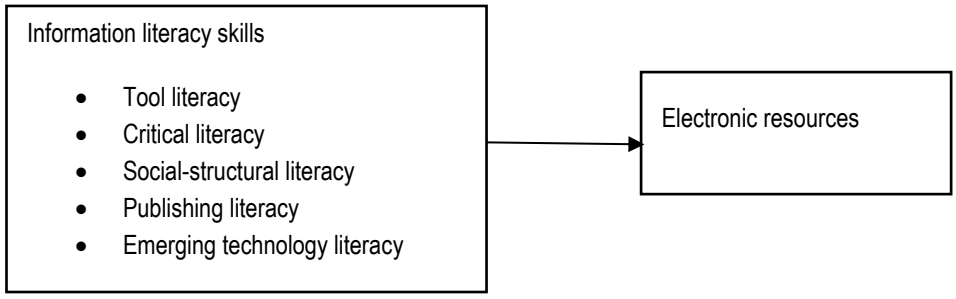

Figure 1: Theoretical framework of the study

Odele (2018) extensively elucidates the multifaceted nature of information literacy skills, deeming them integral in navigating the complexities of contemporary information technology, particularly in academia. The foundational aspects of information literacy skills as posited by Odele (2018) include:

- Tool literacy: This refers to the ability to comprehend and use modern information technology's conceptual and practical tools as they relate to education and the fields of work and professional life that the individual intends to adopt.
- Social-structural literacy: This reveals the understanding of how information is socially situated and produced.
- Publishing literacy: This reflects the ability to format and publish research and ideas in textual and multimedia formats.
- Emergent technology literacy: This refers to the awareness and the ability to adapt to, understand, evaluate, and make use of emerging information technology.
- Critical literacy: This reveals the ability to critically evaluate the strengths and weaknesses, capabilities and limits, of information technologies.

The explosion of digital information currently experienced as a result of a series of developmental actions in our world makes these aspects of information literacy abilities crucial for the use of electronic resources. Odele (2018) claims that if students don't have the necessary computer and searching skills, it may be difficult for them to effectively use electronic resources due to their complexity, which calls for information literacy. In other words, one's level of IL skills may influence how successfully one searches for and retrieves electronic information.

Building upon the theoretical framework established by Odele (2018), this study also draws insights from prior theories and models that underscore the importance of information literacy. The Big6 Model by Eisenberg and Berkowitz (1990) and the Seven Pillars of Information Literacy by SCONUL (1999) serve as significant antecedents, providing a structured approach to information literacy skills development and their application in various contexts.

Given the theoretical underpinnings and the contextual focus of this study, the following hypotheses are proposed:

- H1: There is a positive relationship between the level of tool literacy and the effective utilization of electronic resources among undergraduate students at UiTM Puncak Perdana.
- H2: Higher levels of social-structural literacy correlate with improved proficiency in using electronic resources.
- H3: A strong publishing literacy is associated with an enhanced ability to disseminate research and ideas through electronic resources.
- H4: Students with advanced emergent technology literacy demonstrate better adaptability and utilization of electronic resources.
- H5: The ability to critically evaluate information technologies (Critical Literacy) significantly influences the successful interaction with electronic resources.

These hypotheses aim to shed light on the nuanced relationships between the various dimensions of information literacy skills and the usage of electronic resources, thereby contributing to a comprehensive understanding of their interplay in an academic setting.

3.0 Methodology

The research design adopted for the study is the survey method. This study focuses on undergraduate students at Universiti Teknologi MARA (UiTM) Puncak Perdana's Information literacy skills in the use of electronic resources. This research was limited to the UiTM Puncak Perdana campus. This study was conducted utilizing a quantitative approach, which is a questionnaire prepared with a Google form and distributed via student emails, WhatsApp, and telegram, which are available to find respondents. This study's target audience consists of undergraduate students from two different faculties at the UiTM Puncak Perdana campus. The surveys are organized into three sections: Section A covers demographic information; Section B covers electronic resources; and Section C covers information literacy abilities while using electronic resources. The data collection period lasted three weeks, and 218 undergraduate students from the Puncak Perdana campus responded successfully.

4.0 Findings

4.1 Demographic Background

Table 1 provides the demographic information of the participants in the study. The table includes the frequencies and percentages of respondents based on their gender, age, education level, and faculty affiliation. Regarding gender, 57.3% of the participants identified as female, while 42.7% identified as male. In terms of age, the majority of participants were in the age groups of 21 to 23 years old (41.3%) and 24 to 26 years old (36.2%). A smaller proportion of participants were either 18 to 20 years old (19.7%) or 27 years old and above (2.8%). Concerning education level, 69.3% of the participants held a Bachelor's degree, and 30.7% had a Diploma qualification. Lastly, in terms of faculty affiliation, 67.4% of the participants were from the School of Information Science, College of Computing, Informatics, and Mathematics while 32.6% belonged to the College of Creative Arts. Overall, Table 1 provides an overview of the distribution of participants based on their demographic characteristics, which is crucial for understanding the sample composition in the study.

Table 1: Demographic information

Demographic Information		Frequency	%
Gender	Female	125	57.3
	Male	93	42.7
Age	18 to 20 years old	43	19.7
	21 to 23 years old	90	41.3
	24 to 26 years old	79	36.2
	27 years old and above	6	2.8
Education level	Diploma	67	30.7
	Bachelor Degree	151	69.3
Faculty	College of Creative Arts	71	32.6
	School of Information Science, College of Computing, Informatics and Mathematics	147	67.4

4.2 Descriptive analysis

4.2.1 Level of Literacy Skills

Table 2 provides an overview of the participants' literacy skills, focusing on five key areas: tool literacy, critical literacy, social-cultural literacy, publishing literacy, and emerging technology literacy, along with overall information literacy. The table presents the frequency, percentage, and mean scores for each literacy level within these dimensions.

In the area of tool literacy, only 0.9% of participants had a low level, while 32.1% had a moderate level, and a significant majority of 67.0% exhibited a high level, resulting in an overall mean score of 3.08. Critical literacy showed similar patterns, with 0.5% having a low level, 45.9% with a moderate level, and 53.7% showing a high level, resulting in a higher overall mean score of 3.18.

Regarding social-cultural literacy, 1.4% of participants had a low level, 35.3% had a moderate level, and a considerable majority of 63.3% demonstrated a high level, leading to an overall mean score of 3.02. For publishing literacy, 2.3% had a low level, 39.4% had a moderate level, and 58.3% showed a high level, resulting in an overall mean score of 3.09.

In the context of emerging technology literacy, 1.8% of participants had a low level, 44.5% exhibited a moderate level, and 53.7% had a high level, leading to an overall mean score of 3.16. Lastly, the participants' information literacy displayed a relatively balanced distribution, with 47.2% having a moderate level, and 52.8% showing a high level, resulting in a mean score of 3.65.

The table reveals that the majority of participants demonstrated high literacy levels across the various dimensions, indicating their proficiency in using tools, critically analyzing information, understanding social and cultural contexts, navigating publishing materials, and utilizing emerging technologies effectively. It also highlights the overall positive level of information literacy among the participants.

Table 2: Level of literacy skills

Variable	Level	Frequency	Percentage	Mean
Tool literacy	Low	2	0.9	2.13
	Moderate	70	32.1	3.12
	High	146	67.0	4.00
Critical literacy	Low	1	0.5	2.25
	Moderate	100	45.9	3.24
	High	117	53.7	4.06
Social cultural literacy	Low	3	1.4	2.00
	Moderate	77	35.3	3.08
	High	138	63.3	3.97
Publishing literacy	Low	5	2.3	1.95
	Moderate	86	39.4	3.26
	High	127	58.3	4.06
Emerging technology literacy	Low	4	1.8	2.25
	Moderate	97	44.5	3.19
	High	117	53.7	4.05
Information literacy	Moderate	103	47.2	3.35
	High	115	52.8	3.95

4.2.2 Electronic Resources

Table 3 presents the descriptive analysis of electronic resource usage among the participants, encompassing the frequency of use, the purpose of use, and the types of electronic resources utilized. Regarding the frequency of use, the majority of participants, accounting for 69.7%, reported using electronic resources very often, while 25.2% used them often. A smaller proportion, 5.0%, mentioned using them rarely, and none reported not using electronic resources at all.

Concerning the purpose of using electronic resources, the participants indicated diverse intentions. The most common purpose was for general information, with 24.24% of respondents using electronic resources for this reason. Research was another prevalent purpose, as 21.03% of participants utilized electronic resources for research information. Lecture notes were accessed by 16.76% of respondents, and 14.97% used electronic resources for literature review purposes. Additionally, 22.99% of participants used electronic resources for assignments.

The table also delineates the various types of electronic resources that the participants utilized. The most frequently employed electronic resource was the internet, with 26.61% of respondents accessing it. Online Public Access Catalog (OPAC) was used by 17.79% of participants, while E-Database was accessed by 14.71%. E-journals were utilized by 13.17% of participants, and E-Books were accessed by 12.18%. E-News and E-Magazines were less commonly used, with 8.82% and 6.72% of respondents using them, respectively.

Overall, the table reflects the significant reliance on electronic resources by the participants, particularly for research, general information gathering, lecture notes, and assignments. It also illustrates the diversity of electronic resources used, with the Internet being the most prevalent resource utilized in the study. These findings suggest that electronic resources play a crucial role in supporting the academic and information needs of the participants in their learning and research activities.

Table 3: Descriptive analysis of electronic resources

Electronic Resources		Frequency	%
How often do you use electronic resources?	Very often	152	69.7
	Often	55	25.2
	Rarely	11	5.0
	Not at all	0	0
The purpose of using electronic resources.	Research	118	21.03
	General information	136	24.24
	Lecture notes	94	16.76
	Literature review	84	14.97
	Assignment	129	22.99
What are the types of electronic resources you used?	Online Public Access Catalog (OPAC)	127	17.79
	E-Books	87	12.18
	E-Journals	94	13.17

Electronic Resources		Frequency	%
	E-Database	105	14.71
	E-Magazine	48	6.72
	E-News	63	8.82
	Internet	190	26.61

4.3 Spearman Correlation Analysis

Table 4 presents the results of a Spearman correlation analysis that examines the relationship between various literacy skills (tool literacy, critical literacy, social-cultural literacy, publishing literacy, emerging technology literacy, and information literacy) with the use of electronic resources among undergraduate students at UiTM Puncak Perdana. The table provides information on the significance level (Sig.), Spearman correlation coefficients, and their interpretation.

Overall, the findings suggest that students with higher tool literacy, critical literacy and social-cultural literacy skills are more inclined to utilize electronic resources frequently. However, the relationships between publishing literacy, emerging technology literacy, and information literacy with the use of electronic resources appear to be weaker and less significant. It is important to note that while some of these correlations may not be statistically significant, they still provide valuable insights into the associations between different literacy skills and electronic resource usage among undergraduate students at UiTM Puncak Perdana.

Hence, hypotheses H_1, H_2 and H_3 in this study are accepted because there is a significant positive relationship between tool literacy, critical literacy and social-cultural literacy with the use of electronic resources. However, hypotheses H_4, H_5 and H_6 in this study are rejected because there is no significant relationship between publishing literacy, emerging technology literacy and information literacy with the use of electronic resources.

Table 4: Spearman correlation analysis between tool literacy, critical literacy, social-cultural literacy, publishing literacy, emerging technology literacy and information literacy with the use of electronic resources among undergraduate students at UiTM Puncak Perdana.

Independent variable	Use of electronic resources	
	Sig.	Pearson correlation
Tool literacy	0.00	0.81
Critical literacy	0.00	0.80
Social cultural literacy	0.02	0.16
Publishing literacy	0.43	0.05
Emerging technology literacy	0.37	0.06
Information literacy	0.44	0.05

**Correlation is significant at the 0.01 level (2-tailed)*

5.0 Discussions

The data presented in Table 2 emphasizes the competency levels of students in various dimensions of information literacy skills. It's compelling to observe that a considerable majority of participants demonstrated high literacy levels across these dimensions. This proficiency in tool literacy, critical thinking, understanding of social and cultural contexts, publishing, and leveraging emerging technologies can significantly determine the extent to which students can exploit electronic resources for academic purposes. According to (De Paor & Heravi, 2020), the understanding and adoption of information literacy are pivotal in navigating the digital age, especially in the academic realm. The competencies exhibited by the students, as observed in the table, suggest that they are well-equipped to delve into the complex world of electronic resources.

Table 3 provides insight into the participants' interactions with various electronic resources. The profound dependence on these resources, especially for academic pursuits such as research, gathering general information, accessing lecture notes, and completing assignments, aligns with the increasing digitization trends in modern academia (Habib, et al., 2021). Notably, the Internet's predominance as the most accessed resource underscores its centrality in current educational practices. This extensive utilization of electronic resources can be attributed to the flexibility, accessibility, and vast reservoir of information they offer, which traditional resources might lack (Szymkowiak, et al., 2021).

Spearman Correlation Analysis presented in Table 4 offers a compelling narrative regarding the hypotheses postulated. Tool literacy, critical literacy, and social-cultural literacy have significant positive relationships with the utilization of electronic resources. This finding supports H1 and H2, suggesting that an enhanced ability to comprehend and employ tools, coupled with a critical evaluation capacity and understanding of information's social context, directly corresponds to efficient utilization of electronic resources. This is consistent with the work of Falloon (2020), which asserts that various aspects of information literacy play a critical role in effective engagement with electronic resources. However, for publishing literacy, emerging technology literacy, and information literacy, the relationship with the use of electronic resources isn't statistically significant, leading to the rejection of H3, H4, and H5. While the exact reasons for these weaker associations could be multifaceted, students at UiTM Puncak Perdana may prioritize foundational literacy skills over advanced ones when navigating electronic resources. Further qualitative investigation might be necessary to ascertain the underlying causes.

6.0 Limitations and Conclusions

Several limitations of the current study should be noted. First, this study could have resulted in a biased sample, as the students who were more interested in information literacy may have been more likely to participate in the study. Additionally, the study only focused

on undergraduate students at UiTM Puncak Perdana. As such, the results of the study may not be generalizable to other populations of students. Hence, it might be required to include general population samples. In sum, information literacy is the ability to find, evaluate, and use information effectively. It is an essential skill for undergraduate students in the digital age, where they are faced with an ever-increasing amount of information. The use of electronic resources, such as online databases and journals, is becoming increasingly common in academic research. However, not all undergraduate students have the information literacy skills they need to use these resources effectively.

The study investigated the information literacy abilities of undergraduate students and their relationship to the use of electronic resources. The findings showed that the majority of participants had high literacy levels across the various dimensions, indicating their proficiency in using tools, critically analyzing information, understanding social and cultural contexts, navigating publishing materials, and utilizing emerging technologies effectively. According to the research's findings, information literacy skills are crucial for undergraduate students to successfully utilise online resources. Nevertheless, depending on the kind of resource being utilized, different specific abilities may be more crucial for using electronic resources effectively. Information literacy becomes an essential skill for students to have to critically navigate the vast sea of digital information as the world of technology continues to grow and influence the educational landscape. This study's findings indicate that information literacy is a critical ability for undergraduate students to have in the digital age. Students should continue to receive information literacy lessons and tools from libraries and other educational institutions to help them acquire these skills. Notably, these research efforts have made notable contributions towards promoting the critical role of information literacy skills, especially in the context of electronic resources, for undergraduate students and their academic success.

Acknowledgement

The author(s) would like to thank the College of Computing, Informatics and Mathematics, Universiti Teknologi MARA, Shah Alam for providing financial support for the publication of this manuscript.

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