

تحليل نقدي لمهارات محو الأمية الرقمية لدى أعضاء الهيئة التدريسية والموظفين الإداريين خلال الوباء

إلهام الدوسري

ملخص:

هدف الدراسة: تهدف هذه الدراسة إلى التحقيق في آثار مهارات محو الأمية الرقمية على استهلاك المعلومات لدى أعضاء هيئة التدريس والموظفين بجامعة الكويت فيما يتعلق بفيروس كورونا. **المنهجية:** بلغ عدد أفراد العينة البحثية 105 مستجيبين ومستجيبات، وقد استخدمت الاستبانة الإلكترونية أداة رئيسة للدراسة. تم إدخال البيانات وتحليلها بواسطة البرنامج الإحصائي SPSS (IBM SPSS 25.0). وقد اعتمدت الدراسة على الإحصاء الوصفي لحساب المتوسطات والانحرافات المعيارية والنسب المئوية لعينة التركيبة السكانية وبعض أسئلة المسح. وقد تم استخدام تحليل ANOVA أحادي الاتجاه لاختبار الفروق ذات الدلالة الإحصائية بين متوسطات المجموعات. **النتائج:** أشارت النتائج إلى أن 61.9% من المشاركين قد انضموا إلى ورش عمل عبر الإنترنت في محو الأمية للموارد الرقمية في أثناء الوباء. وبالمثل، وافق 50.5% من المستجيبين على أن الموارد الرقمية كانت صالحة لجمع المعلومات، واتفق 59% منهم على أن محو الأمية الرقمية كان له تأثير في الحصول على معلومات حقيقية، فيما أعرب 85.7% منهم عن رغبتهم في تحسين مهارات محو الأمية الرقمية لديهم. كان الموظفون الإداريون والمشاركون الحاصلون على دبلوم أكثر عرضة لتطبيق المعرفة لمنع انتشار الفيروس التاجي وأكثر عرضة للوصول إلى موارد المعلومات الرقمية. **الخلاصة:** يتطلب الاعتماد على المصادر عبر الإنترنت من المستخدمين تطوير مهارات تحليلية لتفسير مدى أصالة المصدر. بشكل عام، تسهم الدراسة في تحليل مصداقية المصادر الرقمية للحصول على محتوى إعلامي حول جائحة فيروس كورونا.

المصطلحات الأساسية: مهارات محو الأمية الرقمية، جائحة، فيروس كورونا، المعلومات الصحية، أعضاء هيئة التدريس، الموظفون الإداريون.

Critical Analysis of Digital Information Literacy of Faculty and Administrative Staff during the Pandemic

*Elham AlDosary**

Abstract

Objective: This study aims to investigate the digital information literacy skills for the consumption of information by Kuwait University faculty and administrative staff regarding the coronavirus. **Methods:** The online questionnaire was the instrument used to collect the data with the convenience sampling method from faculty and staff in the College of Social Sciences at Kuwait University during the COVID-19 pandemic in Kuwait. The Statistical Package for Social Sciences (IBM SPSS 25.0) was used to analyze the data of 105 participants. **Results:** The findings indicate that 61.9% of the participants have joined online workshops in digital resources literacy during the pandemic. Similarly, 50.5% of the respondents agreed that digital resources were valid for gathering information, 59% agreed that digital literacy was impactful for obtaining genuine information, and 85.7% had the desire to improve their digital literacy skills. Administrative staff and participants with a diploma were more likely to apply knowledge to prevent the coronavirus spread and more likely to access digital information resources. **Conclusion:** Dependence on online sources requires users to develop analytical skills for interpreting source authenticity. Overall, the research contributes to analyzing the reliability of digital sources for acquiring informative content on the coronavirus pandemic.

Keywords: Digital Literacy Skills, Coronavirus, Pandemic, Health-related Information, Faculty, Administrative Staff.

* Department of Information Studies College of Social Sciences, Kuwait University.
Email: elham732001@yahoo.com

Introduction

The coronavirus that causes COVID-19 disease, a severe acute respiratory syndrome, was first identified in late 2019. The World Health Organization (WHO) declared the coronavirus a global public health emergency and pandemic on March 11, 2020 (WHO, 2020). The COVID-19 pandemic has brought changes in many life domains, including how we learn and work. People have been instructed to take great precautions to stay safe from this disease. Every age group is threatened, and the media is playing its role in disseminating information about the virus spread, precautionary measures, governmental measures, and institutional steps (Anwar, et al., 2020). The spread of information is key to keeping people well-informed and updated on what to do and what to avoid, as new studies are published every day. Thus, public health information has been a crucial tool for the government in its efforts to control the pandemic. However, people have different levels of skill in searching for health information. The COVID-19 pandemic has revealed gaps in the health information literacy of the global population, and it has demonstrated the need for comprehensive mapping of the general state of health information literacy in each country (Cangussú, et al., 2020).

Every institution worldwide has taken steps to reduce its members' risk of exposure to the coronavirus. Education is one of the most affected sectors, with pandemic-related measures severely inhibiting the promotion of inclusive, continuous, quality learning. Such challenges are linked to the increasing need for social distancing and lockdown to mitigate the spread of COVID-19 (Chun, et al., 2021). Faculty and administrative staff have a key role to play in educating themselves about the coronavirus first, and then transferring this information to their students. Practices and rules strictly applied by faculty and administrative staff can help control the spread of disease in the educational sector (McDougall, et al., 2018). Accordingly, faculty and administrative staff must develop sufficient digital information literacy to (1) optimally use technology in fostering learning during lockdowns, and (2) improve their health information literacy, which is key to reducing the spread of the pandemic. Digital information literacy enables relevant knowledge to be effectively gathered in a particular research area.

The digital information literacy of faculty and administrative staff is a critical area of concern during the pandemic, given the need to promote

access to learning materials and services. Lockdowns have compelled millions of people to depend significantly on technological platforms for working from home. About 45% of employees in UK currently require flexible working conditions (Deamer, 2020). Continuous improvement in digital literacy skills is, therefore, needed to ensure optimal utilization of technology during the pandemic. For instance, individuals require digital training due to the increasing adoption of cloud computing tools, artificial intelligence, and data analytics (Deamer, 2020). Accordingly, faculty and administrative staff should develop the digital information literacy necessary to capitalize on technology for work and education, among other services, and to improve their health information literacy.

Research Statement

This research focuses on the acquisition of digital information literacy skills by faculty and administrative staff to improve their health information literacy during COVID-19 lockdowns. The higher education sector needs strategies to increase the digital information literacy of teachers and students as technology users. This is for enabling individuals to optimize the use of digital tools for accessing educational content. Digital information literacy entails having the technical skills necessary to effectively use information and communications technology (ICT) (Tejedor, et al., 2020). Developing this literacy is crucial for navigating the information society. Consequently, against the background of COVID-19 lockdowns, faculty and administrative staff must explore and develop their digital information literacy, which would enable them to design and deliver smooth academic programs, and improve their health information literacy.

The study also focuses on how COVID-19 lockdowns have been affecting higher education. As in most countries, the education sector in Kuwait has been affected by the pandemic and lockdowns. The great challenge for the Kuwaiti government and public institutions is to increase the public's health information literacy in order to combat fake information, which has inhibited effective management of the crisis. Faculty and administrative staff should, thus, contribute by aiming to improve their own and students' health information literacy during the pandemic. As lockdowns have caused major damage to the higher education sector, faculty and administrative staff should also focus on developing the digital literacy competencies they need to ensure the students' continued access to quality education. The acquisition of such skills can help to address

the current challenges by supporting the successful implementation of health information literacy strategies in higher education. This research investigates faculty and administrative staff perceptions of their digital information literacy skills, including their abilities to make good decisions on consuming coronavirus-related information and develop a successful information-provision system regarding COVID-19 in the higher education sector.

Significance of the Problem

The focal problem of digital information literacy is significant due to the necessity of maintaining smooth and effective learning programs during the coronavirus lockdowns. Despite the high demand for digital literacy skills, such competencies are limited for various reasons; most prominently is the fear of technology, inherent in the view that digital roles are strictly for “techies,” which results in the failure of many people to acquire this skill. Educators, employers, and government agencies should address this cultural challenge by enhancing the individuals’ readiness to undertake digital information literacy training. In higher education, faculty and administrative staff need to overcome their fear of technology in order to develop competencies in effective technology utilization during COVID-19 lockdowns.

Another issue is the widespread lack of awareness of the strategies necessary for developing digital information literacy skills. Even in universities and schools where people are interested in improving their digital competencies, insufficient knowledge of relevant tools undermines the capacity to acquire such abilities (Deamer, 2020). To tackle this situation, institutions should develop supportive platforms to increase awareness among faculty and administrative staff about the instruments available for enhancing their digital information literacy.

Education systems are also struggling to keep pace with technological changes. Deamer (2020) posited that once educational institutions have developed a particular skill, the demand for another (new) competency starts to grow. It is, therefore, necessary for educational institutions to remain agile and innovative in providing the training necessary for optimal competency development in digital information literacy. For example, during the current pandemic, faculty and administrative staff should develop suitable resources and platforms for ongoing skill acquisition so

as to ensure the students' effective utilization of digital tools for education. This study explores the important factors underlying digital information literacy, relevant not only to the smooth implementation of online learning programs but also to the improvement of health information literacy among faculty and administrative staff.

Surprisingly, despite the fact that much research has been conducted on the pandemic and the role of digital information literacy, no study has yet explored the context of faculty and administrative staff practices during COVID-19 lockdowns. To bridge this gap, the present study examines how faculty and administrative staff obtain information about the coronavirus. This research aims to investigate the digital information literacy of faculty and administrative staff at Kuwait University and how this informs their decision-making on consuming coronavirus-related information. It also aims to evaluate the relationship between socio-demographic characteristics (gender, age, marital status, qualification, occupation) and four scales developed by the researcher that include recognizing valid information (RVI), improving digital information literacy skills (IDILS), applying knowledge to prevent the spread of coronavirus (AKPC), and digital information literacy skills (DILS). This study focuses on answering the following questions:

- Which digital information resources are used by faculty and administrative staff to gather information about the coronavirus?
- What digital information literacy skills do faculty and administrative staff use to access information from digital resources regarding the coronavirus?
- What are the impactful digital information skills acquired by staff for evaluating the validity and reliability of coronavirus-related information?
- How do faculty and administrative staff apply the knowledge gained from digital sources to prevent the spread of coronavirus?
- How do faculty and administrative staff improve their digital information literacy skills?
- What is the relationship between demographic characteristics (gender, age, marital status, qualification, occupation) and the four digital literacy scales (RVI, IDILS, AKPC, and DILS)?

Literature Review

Various studies have explored the importance of digital information literacy in promoting access to accurate information. According to Pennycook and Rand (2019), the development of social media has resulted in platforms for propagating misinformation. This trend is especially concerning today as it inhibits obtaining reliable scientific data to inform effective decision-making. Accordingly, Mokhtari and Mirzaei (2020) posited that this information age requires individuals to manage the type of information they encounter on different media platforms. Accessing accurate information is particularly important for restricting the spread of coronavirus. Digital information literacy enables relevant knowledge to be effectively gathered in a particular research area. The American Library Association (2013) defines digital information literacy as the competency to capitalize on suitable ICT tools in identifying, assessing, developing, and sharing information based on relevant cognitive and technical capabilities. According to the WHO (2020), physical distancing is the most necessary action in this pandemic situation. Given the need for social distancing, digital platforms have become vital to communication. Therefore, digital information literacy skills are now considered essential for people not only to access accurate information but also to maintain positive connections with one another (Iordache, et al., 2017). Such competencies are critical to effectively restricting the spread of coronavirus. Lin, et al. (2020) supported this perspective by indicating that the global spread of COVID-19 had compelled the public to search for information on self-protection strategies. Consequently, the development of relevant digital information literacy skills among universities' faculty and administrative staff is critical to identifying credible information sources on preventing coronavirus infections.

The need for digital information literacy to promote access to trustworthy information sources has been exemplified in various contexts. According to Quaiocoe and Pata (2015), digital information literacy skills are vital for individuals to remain socially and economically functional, and educators need to provide learning settings that foster the students' development of digital information literacy skills. Khan (2015) highlighted that information literacy allowed individuals to evaluate, assess, and use information for lifelong learning, so it is vital in the digital age. Moreover, information literacy allows individuals to identify the need for information

and how to locate, evaluate, and use information effectively; in Kumari and Mallaiah's (2017) study, 70% of the respondents were using the Internet daily. Consequently, the development of adequate digital information literacy skills is vital to ensuring access to reliable information sources. Such qualities are especially crucial for faculty and administrative staff obtaining and sharing valid data related to coronavirus.

The assessment of digital information sources is also critical to enhancing the acquisition and use of accurate health information. Alduraywish, et al. (2020) posited that diverse information sources majorly influenced perceptions of medical knowledge in Saudi Arabia; accordingly, they emphasized the necessity for trustworthy health-information sources to promote a strong foundation of health knowledge in the context of proliferating social media and the Internet revolution. Ali and Bhatti (2020) highlighted promoting COVID-19 public health awareness as the most essential instrument for mitigating the crisis. Accordingly, developing the individuals' information literacy to allow them to distinguish between trustworthy and unreliable information sources is fundamental to limiting the spread of coronavirus. Kalayou, et al. (2020) pointed out that seeking health information positively by healthcare providers for coronavirus depends on giving them access to computers and training them on ICT, particularly on accessing the Internet.

The growing dependence on digital platforms, especially social media as a source of information requires individuals to cultivate literacy skills that allow them to select accurate data. According to Hornmoen and McInnes (2018), use of social media as an information source is growing among professionals and general public, with one aim being to access life-saving information during disease outbreaks: for example, during the 2014 Ebola outbreak in West Africa, both social media and conventional media spread crisis-related information. Social media platforms are thus important facilitators of access to information, so users need to develop literacy skills to identify accurate information for disease prevention. The result of Abdul-Fatawu (2021) study indicated that most participants used the internet daily and searched for information related to COVID-19.

The need for digital information literacy skills is especially pressing given the increasing proliferation of fake news. Moscadelli, et al.'s (2020) review of articles concerning COVID-19 found that 23.1% of 2,102 articles

contained fake news. This indicates that without accurate assessment of information sources, individuals may rely on incorrect information when making decisions, thus increasing infection risk. Similarly, Okan, et al. (2020) described the concept of “infodemic” (information epidemic), implying the rapid spread of large volumes of inaccurate and accurate data, and emphasized the necessity for information and media literacy to protect people from misinformation and promote their capacity to make informed decisions on protective and healthy behaviors. Therefore, promoting digital information literacy skills among faculty and administrative staff is fundamental to ensuring that valid data enhances the development of suitable interventions to tackle COVID-19.

In line with the growing demand for accurate information, some higher learning institutions have developed an information-seeking pattern aimed at enhancing effective decision-making. Bandi and Ramakrishnegowda (2015) reported that faculty were interested in implementing initiatives aimed at promoting information literacy at the university level. Such skills are necessary to ensure access to and use of accurate information in the institution. Similarly, the study by Shukla et al. (2020) demonstrated that digital information literacy skills were also beneficial to students, contributing to both improved academic performance and greater capacity to understand health information for decision-making. Therefore, the development of sufficient digital information literacy skills is critical to promoting individuals’ capacity to capitalize on reliable information sources regarding coronavirus mitigation.

The need for accurate information related to COVID-19, and hence for individuals to develop adequate literacy skills, has already been emphasized in research. According to Dobrila (2020), continuing education in times of uncertainty necessitates access to relevant information and training for faculty and students. Ong’ong’a and Demuyakor (2020) indicated that social media tools are critical to empowering people with information but can be used to spread rumors and malicious messages, which may lead to panic and misinformed decisions. Nash (2020) argued that online platforms, such as Zoom and Facebook, had played a vital role in allowing people to continue communicating while social distancing. Nash also found that after digital literacy was promoted to a particular group, their use of media improved. Accordingly, creating adequate opportunities for faculty and administrative staff to foster digital information literacy skills

will play a major role in enhancing the acquisition and use of reliable information sources.

The necessity for information literacy in the COVID-19 era is also linked to the need for faculty and administrative staff to supply accurate information to students via distance learning. According to Tzifopoulos (2020), the coronavirus pandemic has led to unprecedented changes in education, requiring students to engage in remote learning. This situation requires both faculty and students to develop the literacy skills needed to ensure effective utilization of accurate information. Kumari and Mallaiah (2017) posited that faculty should capitalize on available resources to enhance their skills for teaching students by using technology.

Moreover, faculty perceptions of students' digital information literacy skills have been explored with a view to fostering access to credible data. According to Kousar and Mahmood (2015), information literacy competencies are important across all fields, including engineering and science; students need to develop such skills to select and access various sources of information available in different formats. McDougall, et al. (2018) indicated that technology had created the digital classroom, offering a community space for facilitating workshops for students and families. This scenario requires individuals to develop digital literacy skills to ensure optimal benefit from credible data sources. Nonetheless, Guzmán-Simón, et al. (2017) indicated the scarcity of digital competence in university literacy activities among students and faculty. Accordingly, faculty and administrative staff must explore the procedures necessary to enhance digital information literacy. Such strategies are critical for enhancing access to reliable information concerning coronavirus.

Adequate digital information literacy skills are linked to effective communication in various contexts. Osterman (2012) emphasized the significance of technology skills in fostering communication with the external world, as well as in performing creative, administrative, and educative tasks. Osterman also highlighted the importance of digital information literacy for deploying a cognitive-thinking strategy to capitalize on access to credible information. Phuapan, et al. (2016) revealed that digital skills, including the ability to access, create, evaluate, and communicate information, were vital competencies in today's digital world; they also singled out evaluation as the most important aspect of digital information literacy, as it allows information users to identify reliable

and credible information for decision-making. Agbo (2015) proposed various strategies, including peer guidance and institutional training, to enhance Internet literacy skills among university staff. Development of the aforementioned competencies in this coronavirus era is critical to enhancing the individuals' evaluation of available data to inform health-care-related decisions.

Furthermore, with the continued advancement of ICT, universities have created digital libraries to enhance information access. According to Thanuskodi and Ravi (2011), libraries have transformed significantly with the development of ICT. Anyim (2018) indicated that library staff and users needed to acquire ICT literacy skills to ensure effective searching for and retrieval of information. Accordingly, faculty and administrative staff must equip themselves with adequate digital information literacy skills to access and analyze information related to current issues, particularly coronavirus.

Methodology

Sample and Data Collection

We adopted an explanatory design to investigate the digital information literacy of faculty and administrative staff in the College of Social Sciences, which is one of the largest colleges at Kuwait University that was established in 1998 comprising five departments: Sociology and Social Work, Psychology, Geography, Political Science, and Information Studies. The college attracts a large number of students, with nearly 2,800 enrollments in 2020, and it has 114 faculty members and 98 administrative staff (Kuwait University, 2020).

The quantitative method used in this study involved statistical analysis and interpretation of numerical data, and the quantitative data was collected through an online questionnaire survey. Faculty and administrative staff were recruited through convenience (non-probability) sampling during the COVID-19 pandemic. The survey was distributed by WhatsApp and Twitter – the most popular social media tools in Kuwait (Al-Kandari, 2019). Data was collected over a two-week period from July 13 to 27, 2020.

Research Instrument

The online questionnaire was designed and developed for data collection using Google Forms, and it comprised two sections: The first section encompassed questions on the respondents' basic demographics,

such as gender, age, occupation, educational qualification, occupation, marital status, and whether they had attended an online workshop in digital literacy; the second section contained 13 questions, seven of which were developed to ask about the respondents' usage of and benefits from digital resources regarding the coronavirus, and the other six questions were designed to examine the participants' digital information literacy skills and their desired methods to improve them, if any! The four scales developed by the researcher for this project were as follows:

- 1 - *Recognizing the Validity of Information (RVI)*. This scale includes five items about how participants consider the validity of information posted on sites they follow for coronavirus news. It focuses on checking source authenticity, checking public reviews, comparing news with other sources, reviewing details of the data and scientific analysis, and checking the reliability of sources compared to online news.
- 2 - *Improving Digital Information Literacy Skills (IDILS)*. This scale contains five items about how participants improve their digital literacy skills to access authentic news. The questions include developing analytical skills (e.g., checking the reliability and validity of digital sources), performing scientific analysis (e.g., reviewing and analyzing scientific data, reviewing graphs and charts to ensure proper interpretation in the source), taking suggestions from other faculty members, checking the background of online platforms, and checking videos and referring to books on data analysis.
- 3 - *Applying Knowledge to Prevent Coronavirus (AKPC)*. This scale contains four items focusing on how participants apply the knowledge gained from digital sources to prevent the spread of coronavirus. The questions cover implementing safety measures, following rules on going outside, staying aware of coronavirus symptoms, and adhering to social distancing regulations.
- 4 - *Digital Information Literacy Skills (DILS)*. This scale includes five items about the participants' digital literacy skills for accessing information from digital resources. The questions cover the following: knowledge for using web browsers, capacity to use search engines, knowledge for evaluating the information accuracy of online sources, knowledge for using relevant mobile apps, and ability to assess the validity of online news.

The online questionnaire was in English, which is spoken by most faculty and administrative staff at Kuwait University. A 5-point scale, from 1 (“never”) to 5 (“always”), was used for questions on the first three scales mentioned above. A 5-point Likert scale, from 1 (“Strongly disagree”) to 6 (“Strongly agree”), was used for questions on whether: digital sources are helpful for obtaining information about coronavirus; digital sources are valid for gathering current information about coronavirus; digital literacy helps to access genuine information on coronavirus from online news sources; digital literacy is beneficial for interpreting useful numerical data from online news sources; participants make informed decisions about coronavirus based on information provided by digital sources; it is easy to avoid being misguided by exaggerated and fake information on various social platforms; participants have sufficient digital literacy to consume information about the coronavirus; participants have sufficient digital literacy skills to access information from digital resources about coronavirus. Participants were also asked if they had attended online workshops or did training on digital literacy during the coronavirus lockdown and if they would like to improve their digital literacy skills (“Yes” = 1, “No” = 0 for both items).

All research ethics guidelines were adhered to; no research data had been shared with external sources, and the data had been used for academic purposes only. The survey did not include any personal questions. Gender and all other biases were avoided during the process of selecting the research respondents, and each participant was given an equal chance to convey their perspectives on the research.

Data Analysis

IBM’s Statistical Package for Social Sciences 25.0 was used to analyze the data. Descriptive analyses were used to calculate the means, standard deviations, and percentages for sample demographics and some survey questions. A one-way ANOVA was used to test for statistically significant differences between the means of groups. Subsequently, data validity and reliability were verified to ensure credible information. Four faculty and two staff in the College of Social Sciences reviewed the scales to ensure face validity. Cronbach’s alpha was used to ensure internal consistency: the reliability alpha scores were .778, .829, .762, and .946 for the RVI, IDILS, AKPC, and DILS scales, respectively, thus indicating good reliability.

Results

Demographics

A total of 105 faculty and administrative staff at the College of Social Sciences participated in this study, ensuring solid representation of the whole population. There were 40 (38.1%) males and 65 (61.1%) females. Their age groups were as follows: 25–29: 7 (6.7%); 30–39: 28 (26.7%); 40–49: 30 (28.6%); 50–59: 26 (24.8%); 60 and above: 14 (13.3%). By occupation, 57 (54.3%) participants were professors, 33 (31.4%) were staff, and only 15 (14.3%) were teacher assistants. Most participants (64, 61.0%) had a Ph.D., while 21 (20.0%) had a Bachelor's degree, 15 (14.3%) had a Master's degree, and only 5 (4.8%) had a diploma. Regarding the departments, 27 (25.7%) of the participants worked in administration, 23 (21.9%) in Sociology and Social Work, 19 (18.1%) in Information Studies, 13 (12.4%) in Geography, 12 (11.4%) in Psychology, and 11 (10.5%) in Political Science. Most respondents were married (82 78.1%), while 15 (14.3%) were single, 7 (6.7%) were divorced, and only 1 (1%) was widowed. Most respondents (65, 61.9%) reported that they had joined an online workshop for digital resources literacy during the coronavirus lockdown.

Using Digital Resources

The data showed that all participants considered the WHO and local news websites to be the most trusted sources of coronavirus information. Table 1 presents the participants' views on the most helpful online platforms for information about coronavirus.

Just over half of the respondents (53, 50.5%) agreed that digital resources are valid for gathering current information about coronavirus, while 37 (35.2%) strongly agreed; only 15 (14.3%) were neutral and none disagreed or strongly disagreed. More than half of faculty and administrative staff (54, 51.4%) agreed that they made informed decisions regarding coronavirus based on information provided by digital resources, while 24 (22.9%) strongly agreed and the same number were neutral; only three (2.9%) respondents disagreed.

Table 1.

Most Helpful Digital Sources to Get Information Regarding Coronavirus

Resources	N	%
Local news websites	42	40.0
WHO	22	21.0
Worldometer	6	5.7
CDC	7	6.7
Wikipedia	1	1.0
Search engines (e.g., Google)	5	4.8
Online news	5	4.8
Social media	17	16.2
Total	105	100.0

Recognizing the Validity of Information

Regarding the information posted on sites they followed for coronavirus news, less than half of the respondents (45, 42.9%) always checked source authenticity, 43 (41.0%) often checked public reviews, and 40 (38.1%) sometimes compared news with other sources. Moreover, 44 (41.9%) respondents often reviewed details of the data and scientific analysis, and 33 (31.4%) often checked the reliability of sources compared to online news (see Table 2).

Applying Knowledge to Prevent Coronavirus

As Table 3 illustrates, most respondents always implemented safety measures (62, 59.0%), always followed the rules on going outside (71, 67.6%), always stayed aware of coronavirus symptoms (68, 64.6%), and always adhered to social distancing regulations (76, 72.4%).

Digital Information Literacy Skills

Participants were asked about their perceptions of the benefits of digital information skills in obtaining information about COVID-19. More than half of the respondents (62, 59.0%) agreed that digital literacy is impactful for obtaining genuine information about coronavirus from online news sources. Similarly, 61 (58.1%) respondents agreed that digital

literacy is beneficial for interpreting useful numerical data from online news sources, while 33 (31.4%) strongly agreed, only 11 (10.5%) were neutral, and none disagreed or strongly disagreed.

Table 2.

Recognizing Validity of Information

Response	Always		Often		Sometimes		Rarely		Never		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Checking source authenticity	45	42.9	39	37.1	19	18.1	2	1.9	0	0	105	100.0
Checking public reviews	17	16.2	43	41.0	33	31.4	11	10.5	1	1.0	105	100.0
Comparing news with other sources	27	25.7	28	26.7	40	38.1	10	9.5	0	0	105	100.0
Reviewing details of the data and scientific analysis	16	15.2	44	41.9	21	20.0	22	21.0	2	1.9	105	100.0
Checking the reliability of sources compared to online news	24	22.9	33	31.4	32	30.5	16	15.2	0	0	105	100.0

Table 3.

Applying Knowledge to Prevent Coronavirus

Response	Always		Often		Sometimes		Rarely		Never		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Implementing safety measures	62	59.0	31	29.5	9	8.6	3	2.9	0	0	105	100.0
Following rules on going outside	71	67.6	30	28.6	3	2.9	1	1.0	0	0	105	100.0
Staying aware of Coronavirus symptoms	68	64.8	32	30.5	3	2.9	0	0	2	1.9	105	100.0
Obeying social distancing regulations	76	72.4	19	18.1	9	8.6	1	1.0	0	0	105	100.0

Additionally, fewer than half of the respondents (40, 38.1%) agreed that it is easy to avoid being misguided by exaggerated and fake information on various social platforms; of the remainder, 39 (37.1%) were neutral, 14 (13.3%) disagreed, 10 (9.5%) strongly agreed, and only two (1.9%) strongly disagreed. Likewise, less than half of the respondents (46, 43.8%) agreed that they had sufficient digital literacy to consume information about the coronavirus; of the remainder, 28 (26.7%) were neutral, 15 (14.3%) strongly agreed, 14 (13.3%) disagreed, and only two (1.9%) strongly agreed.

Regarding the participants' digital information literacy skills in accessing coronavirus-related information from digital resources, 41 (39.0%) of the respondents agreed that they had sufficient knowledge of how to use web browsers, 36 (34.3%) reported both strongly agreed and agreed that they had sufficient capacity to use search engines, and a similar number (36, 34.3%) strongly agreed that they had sufficient knowledge to evaluate the information accuracy of online sources. Additionally, 33 (31.4%) agreed that they had sufficient knowledge of how to use relevant mobile apps, and 43 (41.0%) agreed that they had sufficient ability to assess the validity of online news (see Table 4).

Table 4.

Digital Literacy Skills

Response	o Strongly agree		Agree		Neutral		Disagree		Strongly Disagree		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Knowledge for using web browsers	40	38.1	41	39.0	15	14.3	9	8.6	0	0	105	100.0
Capacity to use search engines	36	34.3	36	34.3	19	18.1	14	13.3	0	0	105	100.0
Knowledge for evaluating the information accuracy of online sources	36	34.3	31	29.5	23	21.9	13	12.4	2	1.9	105	100.0
Knowledge for using relevant mobile apps	25	23.8	33	31.4	28	26.7	17	16.2	2	1.9	105	100.0
Ability to assess the validity of online news	28	26.7	43	41.0	19	18.1	14	13.3	1	1.0	105	100.0

Improving Digital Literacy Skills

Almost all respondents (90, 85.7%) expressed their wish to improve their digital literacy skills, with only 10 (9.5%) answering “no.” The results also provided valuable insights into how the participants sought to improve their information digital literacy skills. As Table 5 shows, 39 (37.1%) respondents sometimes engaged in developing analytical skills, 32 (30.5%) sometimes performed scientific analysis, and 32 (30.5%) sometimes took suggestions from other faculty members. Less than half of the respondents (41, 39.0%) often checked the background of online platforms, while 33 (31.4%) sometimes checked videos and referred to books on data analysis.

Table 5.

Improving Digital Literacy Skills

Response	Always		Often		Sometimes		Rarely		Never		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Developing analytical skills (e.g. checking the reliability and validity of digital sources)	30	28.6	32	30.5	39	37.1	4	3.8	0	0	105	100.0
Performing scientific analysis (e.g. reviewing and analyzing scientific data, reviewing graphs and charts with proper interpretation in the source)	21	20.0	31	29.5	32	30.5	15	14.3	6	5.7	105	100.0
Taking suggestions from other faculty members	20	19.0	28	26.7	32	30.5	16	15.2	9	8.6	105	100.0
Checking the background of online platforms	15	14.3	41	39.0	29	27.6	17	16.2	3	2.9	105	100.0
Checking videos and referring to books on data analysis	13	12.4	21	20.0	33	31.4	31	29.5	7	6.7	105	100.0

The Relationships Between Demographic Data and Scales

One-way ANOVA was used to test the relationships between demographic data (age, gender, qualification, occupation, and marital status) and the RVI, IDILS, AKPC, and DILS scales. The results revealed statistically significant differences between occupation groups in the AKPC score ($df(2,102) = F=7.295, p=.001$) and DILS score ($df(2,102) = F=4.789, p=.010$). Administrative staff were more likely to apply knowledge to prevent coronavirus, whereas teacher assistants were less likely to do so. Meanwhile, administrative staff were more likely to have digital literacy skills for accessing information regarding coronavirus from digital resources, whereas professors were less likely to have such digital literacy skills (see Table 6)

Table 6.

Comparison by Occupation

		Sum of Squares	df	Mean Square	F	Sig.
scale1	Between Groups	68.564	2	34.282	2.972	.056
	Within Groups	1176.636	102	11.536		
	Total	1245.200	104			
scale2	Between Groups	38.126	2	19.063	1.107	.335
	Within Groups	1757.264	102	17.228		
	Total	1795.390	104			
scale3	Between Groups	59.314	2	29.657	7.294	.001
	Within Groups	414.743	102	4.066		
	Total	474.057	104			
scale4	Between Groups	195.570	2	97.785	4.789	.010
	Within Groups	2082.678	102	20.418		
	Total	2278.248	104			

There were also statistically significant differences between education groups in the RVI score ($df(3,101) = F=7.111, p=.000$), AKPC score ($df(3,101) = F=5.842, p=.001$), and DILS score ($df(3,101) = F=9.940, p=.000$). Participants with a diploma were more likely to recognize the

validity of information posted on the sites they followed for coronavirus news, whereas participants with a Ph.D. were less likely to do so. Participants with a diploma were also more likely to apply knowledge gained from digital resources to prevent the spread of coronavirus, whereas (again) participants with a Ph.D. were less likely to do so. Likewise, participants with a diploma were more likely to be skilled in accessing information from digital resources regarding coronavirus, whereas participants with a Ph.D. were less likely to be thus skilled (see Table 7).

Table 7.

Comparison by Education

		Sum of Squares	Df	Mean Square	F	Sig.
scale1	Between Groups	217.148	3	72.383	7.111	.000
	Within Groups	1028.052	101	10.179		
	Total	1245.200	104			
scale2	Between Groups	71.314	3	23.771	1.393	.249
	Within Groups	1724.076	101	17.070		
	Total	1795.390	104			
scale3	Between Groups	70.098	3	23.366	5.842	.001
	Within Groups	403.960	101	4.000		
	Total	474.057	104			
scale4	Between Groups	519.325	3	173.108	9.940	.000
	Within Groups	1758.922	101	17.415		
	Total	2278.248	104			

There were statistically significant differences between different departments in the RVI score ($df(5,99) = F=5.023, p=.000$), IDILS score ($df(5,99) = F=2.887, p=.018$), AKPC score ($df(5,99) = F=4.047, p=.002$), and DILS score ($df(5,99) = F=10.890, p=.000$). Political Science participants were more likely to recognize the validity of information on sites they followed for coronavirus information, whereas Information Studies participants were less likely to do so. Similarly, Political Science participants were more likely to improve their digital literacy, whereas Geography participants were

less likely to do so. In addition, Sociology and Social Work participants were more likely to apply knowledge gained from digital sources to prevent the spread of coronavirus, whereas Political Science participants were less likely to do so. Finally, Political Science participants were more likely to have digital literacy skills for accessing information regarding coronavirus from digital resources, whereas Information Studies participants were less likely to have such skills (see Table 8).

Table 8.

Comparison by Department

		Sum of Squares	Df	Mean Square	F	Sig.
scale1	Between Groups	251.959	5	50.392	5.023	.000
	Within Groups	993.241	99	10.033		
	Total	1245.200	104			
scale2	Between Groups	228.467	5	45.693	2.887	.018
	Within Groups	1566.923	99	15.828		
	Total	1795.390	104			
scale3	Between Groups	80.447	5	16.089	4.047	.002
	Within Groups	393.610	99	3.976		
	Total	474.057	104			
scale4	Between Groups	808.433	5	161.687	10.890	.000
	Within Groups	1469.815	99	14.847		
	Total	2278.248	104			

Discussion

The majority of respondents reported participating in online training to acquire the digital information literacy skills necessary to access relevant information on the coronavirus pandemic. Ali, et al. (2020) posited that the current digital age has led to the growing multiplicity of health-related information.

The data in this study demonstrates users' dependence on the WHO and local news websites as credible information sources about coronavirus.

Liu (2020) explored information-seeking tendencies and argued that mass media has increased the opportunities for individuals to access health-related information. In line with this, the present study revealed that faculty and administrative staff recognized the significance of training to foster their digital literacy to ensure that they accessed trustworthy information.

Also, more than half of the participants agreed that digital resources are valid for gathering current information about the coronavirus, and more than half reported making informed decisions about coronavirus based on information from digital resources. This raises the critical issue that misinformation can negatively impact human health, which makes it vital for governments to provide the public with accurate, useful, up-to-date information to guide properly informed decisions.

Moreover, most participants agreed that digital literacy is impactful for obtaining genuine information from online news sources regarding coronavirus, and that digital literacy is beneficial for interpreting useful numerical data from these sources. Digital resources and technologies are playing an important role in the health communication strategies of governments and public health authorities during the coronavirus crisis (Dadaczynski et al., 2021).

Somewhat worryingly, less than half of the participants reported having adequate digital literacy to effectively use coronavirus information. In Okan, et al.'s (2020) study, 47.8% of the respondents reported facing challenges when judging the trustworthiness of media information concerning COVID-19. It is evidently necessary to develop relevant strategies for improving digital literacy skills among faculty and administrative staff to enhance access to accurate information about the pandemic

The findings on recognizing the validity of information demonstrate that many respondents were interested in confirming the authenticity of information sources. This approach is especially important when accessing information on various types of media. However, only a few respondents conducted scientific analysis of the data. Ali, et al. (2020) highlighted the availability of wide-ranging information sources, including governmental and non-governmental websites, which provide valid current data about COVID-19. Liu (2020) also emphasized the importance of mass media in providing health-related information that may influence the public's

behavior. Consequently, determining the validity of information sources is an essential literacy skill for enhancing the use of credible data on the coronavirus pandemic.

The study's findings on improving digital literacy skills indicate that many respondents often checked the background of online platforms, and most indicated a strong inclination to develop analytical skills. Such outcomes echo findings in other studies. For instance, Ali, et al.'s (2020) analysis of Twitter content revealed that 25% of tweets concerning COVID-19 had misinformation. Accordingly, improving digital literacy skills among faculty and administrative staff is critical to ensure their use of credible information sources regarding coronavirus.

The results on applying knowledge to prevent the spread of coronavirus indicate that most participants implemented safety measures, followed rules restricting movement, and adhered to social distancing regulations. The study's participants were accessing and evaluating coronavirus-related information from online sources. Tzifopoulos (2020) emphasized the importance of literacy skills and distance education in allowing students to access knowledge during the coronavirus pandemic. Consequently, faculty and administrative staff must enhance their digital literacy skills to promote remote access to information as a strategy for preventing the spread of COVID-19.

The study's findings on digital literacy skills present crucial data covering various key areas. For instance, most respondents had adequate knowledge related to using web browsers and search engines, evaluating information sources, using relevant mobile apps, and assessing the validity of online news. Ong'ong'a and Demuyakor (2020) previously highlighted social media as the most preferred source of information, followed by websites, and conventional media. Their findings align with this study's results, which show that local news websites are the leading sources of information, followed by the WHO. This can be explained by the fact that developing adequate information literacy skills ensures optimal access to online platforms that provide reliable information about the coronavirus.

With regard to improving digital literacy skills, the vast majority of participants expressed their desire to enhance their digital competencies. Kumari and Mallaiah (2017) similarly emphasized the individuals' desire to develop the literacy skills necessary to meet their information needs.

Accordingly, faculty and administrative staff must strive to develop relevant digital literacy skills to improve their capacity to use accurate information to prevent the spread of coronavirus.

Further findings provide crucial insight on the participants' ability to apply knowledge toward coronavirus prevention (AKPC scale). The higher likelihood of administrative staff applying knowledge for this purpose is explained by their better literacy skills compared to those of faculty. Thanuskodi and Ravi (2011) emphasized the need for university administration to develop infrastructures and programs for staff training on ICT and use of digital resources. Their proposal demonstrates that administrative staff must possess the literacy skills necessary to determine suitable information sources about current issues, especially about COVID-19.

The RVI scale demonstrated that participants with different educational qualifications had varied degrees of digital literacy, with diploma holders having the greatest capacity and Ph.D. holders the lowest capacity to recognize information validity. These findings seem somewhat counterintuitive, as one would expect participants with a Ph.D. to have far greater experience of evaluating the validity of information. Perhaps the finding can be explained by the fact that such participants are more concerned with academic works than with online news. Agbo (2015) proposed the need for institutions to develop ICT literacy programs, including seminars and workshops, for faculty members, library staff, and students, on the basis that this is necessary to enhance their access to digital information services and sources. Creating programs that target all faculty members would be beneficial in addressing the discrepancies identified in this study.

Other findings indicate that faculty of different departments tend to demonstrate different levels of digital literacy. Based on the RVI, IDILS, and AKPC scores, Political Science participants were more inclined than those in other departments to recognize information validity. This may be linked to their role in contributing to policy development. According to Osterman (2012), policymakers must be aware of the significant influence of the Internet on decision-making processes across workplaces, learning institutions, and homes. Consequently, they develop information literacy skills to explore the sources needed to facilitate effective decision-making.

These findings underscore the necessity for faculty and administrative staff to develop the digital literacy skills needed to ensure access to and use of credible coronavirus information.

Conclusion

Based on the study's findings, digital information literacy is a critical competence that allows people to capitalize on credible sources of data for decision-making. It promotes information users' capacity to access, assess, use, and develop content related to various issues, such as the coronavirus issue. This research provides primary evidence of the "new normal" in people's lives during the coronavirus pandemic; it is clear that information sharing has taken a modern twist. For instance, more than half of this study's participants had engaged in online training in digital literacy skills to help them remain informed during a pandemic that prohibited socialization.

Regarding information sources, participants reported that local news websites and the WHO were the most trustworthy sources of coronavirus information sources. The many and varied sources covering the coronavirus pandemic tend to shape beliefs about the current crisis; therefore, access to credible sources of information is crucial to ensure the public use reliable data to make decisions related to tackling COVID-19.

Additionally, most participants had applied the knowledge gained from digital resources to prevent the spread of coronavirus by following the most common rules on going outside, social distancing, and taking safety measures. Given the importance of information literacy in healthcare, members of the education sector can play a key role in enhancing health information literacy.

Finally, almost all participants expressed their desire to improve their digital literacy. Therefore, as authorities and institutions continue to implement containment measures and digitalize learning, they should deliver more training in digital information literacy skills to improve the current state of affairs. These skills are critical for detecting cases of misinformation, fake news, and disinformation, which undermine access to credible information about the pandemic. Accordingly, the acquisition of digital information literacy skills will address the challenges of accessing reliable content and information during the pandemic. Future studies should focus in depth on assessing the digital information literacy of higher education students during the COVID era.

References

- Abdul-Fatawu A., Al-Hashim T., Fuseini A., & Moses M., K. (2021). COVID-19 information-related digital literacy among online health consumers in a low-income country. *International Journal of Medical Informatics*, 145.
- Agbo, A.D. (2015). Strategies for enhancing the acquisition of internet literacy skills among the academic staff in Nigerian universities. *International Journal of Research*, 2(1), 200-207.
- American Library Association. (2013). ALA Task Force releases digital literacy recommendations. Retrieved from <http://www.ala.org/news/press-releases/2013/06/ala-task-force-releases-digital-literacy-recommendations>
- Alduraywish, S.A., Altamimi, L.A., Aldhuwayhi, R.A., AlZamil, L.R., Alzeghayer, L.Y., Alsaleh, F.S., Aldakheel, F.M., & Tharkar, S. (2020). Sources of health information and their impacts on medical knowledge perception among the Saudi Arabian population: Cross-sectional study. *Journal of Medical Internet Research*, 22(3), e14414. Doi: 10.2196/14414.
- Ali, M.Y., & Bhatti, R. (2020). COVID-19 (coronavirus) pandemic: Information sources channels for the public health awareness. *Asia-Pacific Journal of Public Health*, 1-2. Doi: 10.1177/1010539520927261.
- Ali, S.H., Foreman, J., Tozan, Y., Capasso, A., Jones, A.M., & DiClemente, R.J. (2020). Trends and predictors of COVID-19 information sources and their relationship with knowledge and beliefs related to the pandemic: Nationwide cross-sectional study. *JMIR Public Health and Surveillance*, 6(4), e21071. Doi:10.2196/21071.
- Al-Kandari, Y.Y. (2019). The role of social media in cultural development and joint Gulf cultural work. Presented at the Intellectual Seminar for Re-Formulating the Strategy of the Gulf Cooperation Council Countries, The National Council for Culture, Arts and Letters, March 3–8, 2019, Kuwait.
- Anwar, A., Malik, M., Raees, V., & Anwar, A. (2020). Role of mass media and public health communications in the COVID-19 pandemic. *Cureus*, 12(9), e10453. Doi: 10.7759/cureus.10453.

- Anyim, W.O. (2018). Assessment of ICT Literacy skills of digital library users and staff in Salem University Lokoja, Kogi. *Library Philosophy and Practice*, 1801.
- Bandi, I., & Ramakrishnegowda, K.C. (2015). Social science faculty information seeking pattern by using the Internet sources and services at Mumbai University: A study. *International Research: Journal of Library and Information Science*, 5(1), 73-88.
- Cangussú, L.R., Barros, I.R.P.D., Botelho Filho, C.A.D.L., Sampaio Filho, J.D.R., & Lopes, M.R. (2020). COVID-19 and health literacy: The yell of a silent epidemic amidst the pandemic. *Revista da Associação Médica Brasileira*, 66, 31-33.
- Chun, H. K., Comyn, P., & Moreno da Fonseca, P. (2021). Skills development in the time of COVID-19: taking stock of the initial responses in technical and vocational education and training. International Labour Organization and World Bank.
- Dadaczynski, K., Okan, O., Messer, M., Leung, A.Y.M., Rosário, R., Darlington, E., Rathmann, K. (2021). Digital health literacy and web-based information-seeking behaviors of university students in Germany during the COVID-19 pandemic: Cross-sectional survey study. *Journal of Medical Internet Research*, 23(1), e24097.
- Dobrila, M.C. (2020). Legal aspects regarding online learning process for students at university and digital education in European Union: Different life, challenges and the ability to continue education during the pandemic caused by coronavirus (COVID-19). *Revista Romaneasca pentru Educatie Multidimensionala*, 12(2Sup1), 130-137. Doi: 10.18662/rrem/12.2Sup1/298.
- Deamer, L. (2020). Why digital literacy is more important than ever. Electronic Specifier. Retrieved from <https://www.electronicspecifier.com/news/blog/why-digital-literacy-is-more-important-than-ever>
- Guzmán-Simón, F., García-Jiménez, E., & López-Cobo, I. (2017). Undergraduate students' perspectives on digital competence and academic literacy in a Spanish University. *Computers in Human Behavior*, 74, 196-204. Doi: 10.1016/j.chb.2017.04.040.
- Hornmoen, H., & McInnes, C. (2018). Social media communication during disease outbreaks: Findings and recommendations. *Social*

Media Use In Crisis and Risk Communication: Emergencies, Concerns and Awareness, 255.

- Iordache, C., Mariën, I., & Baelden, D. (2017). Developing digital skills and competences: A QuickScan analysis of 13 digital literacy models. *Italian Journal of Sociology of Education*, 9(1), 6-30. Doi: 10.14658/pupj-ijse-2017-1-2.
- Kalayou, M.H., Tilahun, B., Endehabtu, B.F., Nurhussien, F., Melese, T., & Guadie, H.A. (2020). Information seeking on Covid-19 pandemic: Care providers' experience at the University of Gondar Teaching Hospital, Northwest of Ethiopia. *Journal of Multidisciplinary Healthcare*, 13, 1957-1964. Doi: 10.2147/JMDH.S283563.
- Khan, J. (2015). Use of information sources and need of information literacy among students in Aligarh Muslim University Aligarh. *International Journal of Library and Information Science*, 7(1), 10-13. Doi: 10.1007/978-3-319-28197-1_16.
- Kousar, M., & Mahmood, K. (2015). Perceptions of faculty about information literacy skills of postgraduate engineering students. *International Information & Library Review*, 47(1-2), 52-57. Doi: 10.1080/10572317.2015.1055694.
- Kumari, S., & Mallaiah, T.Y. (2017). Digital information literacy skills among faculty members of engineering colleges in Manalore, Karnataka: A study. *International Journal of Digital Library Services IJODLS| Geetanjali Research Publication*, 7(1), 28-37.
- Kuwait University. (2020). The College of Social Sciences. Retrieved from <http://kuweb.ku.edu.kw/COSS/ar/index.htm>
- Lin, Y.H., Liu, C.H., & Chiu, Y.C. (2020). Google searches for the keywords of "wash hands" predict the speed of national spread of COVID-19 outbreak among 21 countries. *Brain, Behavior, & Immunity*, 87, 30-32. Doi: 10.1016/j.bbi.2020.04.02.
- Liu, P.L. (2020). COVID-19 information seeking on digital media and preventive behaviors: The mediation role of worry. *Cyberpsychology, Behavior, and Social Networking*. Doi: 10.1089/cyber.2020.0250.
- McDougall, J., Readman, M., & Wilkinson, P. (2018). The uses of (digital) literacy. *Learning, Media, and Technology*, 43(3), 263-279. Doi: 10.1080/17439884.2018.1462206.

- Mokhtari, H., & Mirzaei, A. (2020). The tsunami of misinformation on COVID-19 challenged the health information literacy of the general public and the readability of educational material: A commentary. *Public Health*, 187, 109-110. Doi: 10.1016/j.puhe.2020.08.011.
- Moscadelli, A., Albora, G., Biamonte, M. A., Giorgetti, D., Innocenzio, M., Paoli, S., Lorini, C., Bonanni, P., & Bonaccorsi, G. (2020). Fake news and Covid-19 in Italy: Results of a quantitative observational study. *International Journal of Environmental Research and Public Health*, 17(16), 5850. Doi: 10.3390/ijerph17165850.
- Nash, C. (2020). Report on digital literacy in academic meetings during the 2020 COVID-19 lockdown. *Challenges*, 11(2), 20. Doi: 10.3390/challe11020020.
- Okan, O., Bollweg, T.M., Berens, E.M., Hurrelmann, K., Bauer, U., & Schaeffer, D. (2020). Coronavirus-related health literacy: A cross-sectional study in adults during the COVID-19 infodemic in Germany. *International Journal of Environmental Research and Public Health*, 17(15), 5503. Doi: 10.3390/ijerph17155503.
- Ong'ong'a, D.O., & Demuyakor, J. (2020). Coronavirus (COVID-19) "infodemic" in the social media: A survey of Kenya international students in China. *New Media and Mass Communication*, 90, 23-25. Doi: 10.7176/NMMC/90-03.
- Osterman, M.D. (2012). Digital literacy: Definition, theoretical framework, and competencies. In M.S. Plakhotnik, S.M. Nielsen, & D.M. Pane (Eds.), *Proceedings of the 11th Annual College of Education & GSN Research Conference* (pp. 135-141). Florida International University.
- Pennycook, G., & Rand, D.G. (2019). Fighting misinformation on social media using crowdsourced judgments of news source quality. *Proceedings of the National Academy of Sciences*, 116(7), 2521-2526. Doi: 10.1073/pnas.1806781116.
- Phuapan, P., Viriyavejakul, C., & Pimdee, P. (2016). An analysis of digital literacy skills among Thai university seniors. *International Journal of Emerging Technologies in Learning*, 11(3), 24-32. Doi: 10.3991/ijet.v11i03.5301.

- Quaicoe, J.S., & Pata, K. (2015). The teachers' digital literacy determining digital divide in public basic schools in Ghana. In S. Kurbanoglu, J. Boustany, S. Špiranec, E. Grassian, D. Mizrachi, & L. Roy (Eds.), *Information Literacy: Moving Toward Sustainability, European Conference on Information Literacy*, Tallinn, Estonia, 11–22 October 2015 (pp. 154-162). Springer.
- Shukla, R., Kumar, A., & Verma, M. K. (2020). Information and digital literacy skills among PG students of social sciences of Mizoram University and Tezpur University: A comparative study. *International Journal of Information Dissemination and Technology*, 10(1), 40-51. Doi: 10.5958/2249-5576.2020.00007.2.
- Tejedor, S., Cervi, L., Pérez-Escoda, A., & Jumbo, F. T. (2020). Digital literacy and higher education during COVID-19 lockdown: Spain, Italy, and Ecuador. *Publications*, 8(4), 48. doi:10.3390/publications8040048
- Thanuskodi, S., & Ravi, S. (2011). Use of digital resources by faculty and research scholars of Manonmaniam Sundaranar University, Tirunelveli. *DESIDOC Journal of Library & Information Technology*, 31(1), 25-31. Doi: 10.14429/djlit.31.1.759.
- Tzifopoulos, M. (2020). In the shadow of Coronavirus: Distance education and digital literacy skills in Greece. *International Journal of Social Science and Technology*, 5(2), 1-14.
- World Health Organization (WHO). (2020). *Coronavirus*. Retrieved from https://www.who.int/health-topics/coronavirus#tab=tab_2.

Submitted: November, 2020

Accepted: May, 2021

