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2018

INFORMATION LITERACY IN THE DIGITAL WORKPLACE

THE EMPLOYEE'S PERCEPTION AND THE IMPORTANCE OF PROMOTING INFORMATION LITERACY IN THE DIGITAL ERA

Åbo Akademi University

Faculty of Social Sciences, Business and
Economics
2018

Master's Thesis in
Information and Knowledge Management

Supervisors: Gunilla Widén and Farhan Ahmad

Information and Knowledge Management
Tile: Information literacy in the digital workplace: The employee's perception and the importance of promoting information literacy in the digital era

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Country: Finland	**City:** Turku	**Year:** 2018	**Number of pages:** 127

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Abstract:

The digitalization of information has contributed to the expansion of information availability, and technology is frequently used in the workplace to support the management of large amounts of information. However, employees need more than mere technology to manage information successfully. In the digital workplace, employees need to develop and refine the technical skills that will enable them to support organizations in remaining competitive in the digital era. Nevertheless, because of the belief that technology alone facilitates the management of information, the development of information literacy of the employee is often ignored in the workplace. Therefore, this study aims to investigate how the employees perceive information literacy, and whether organizations are supporting the development of information literacy skills in the digital workplace. The study examines a variety of theories, including SCONUL's seven pillars of information literacy, Lloyd's information literacy in the workplace context, Bruce's seven faces of information literacy, and Hobbs' digital and media literacy to form a theoretical framework. The data studied were collected using an online questionnaire sent through social media to the employees of diverse organizations. The results of the study indicate that the employees perceive information literacy as an important set of skills to have in the digital workplace. However, the results show that context may influence the way the employees perceive information literacy. Furthermore, the results indicate that some organizations support the development of the employee's information literacy skills, but information technology receives the most attention in the digital workplace. Moreover, the results reveal that not enough effort is spend in facilitating the discoverability and access of digital information and facilitating the development of critical thinking and communications skills among the employees. Additionally, the results show that some of the employees have not fully developed the skills required to manage information effectively. Therefore, challenging organizations to do more to promote the development of information literacy skills in the digital workplace to improve employees' ability to cope with the vast amounts of information in the digital era. Furthermore, organizations could implement an information management strategy in order to ensure the complete development of information management skills in a variety of workplaces.

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List of abbreviations:

ALA	American library association
CL	Computer literacy
DL	Digital literacy
IL	Information literacy
IT	Information technology
OECD	Organization for economic co-operation and development
SCONUL	Society of college, national and university libraries
SHRM	Society for human resource management
SPSS	Statistical package for the social sciences

1 Introduction

The advancement and increasing availability of technology and the digitalization of information have helped to create a workplace that is more technology-based, where the effective management of information has become the norm, because of the value of information in creating competitive advantages (Benson, et al., 2002; Rander, 2016).

Today, numerous organizations recognize the impact of technology on information management processes in the workplace. Consequently, more organizations are adopting the concept of the digital workplace (Benson, et al., 2002; Rander, 2016) The introduction of new technology and digital tools into the workplace has become part of many organizations' daily routine. This is because of the belief that technology can improve workplace efficiency (McDermott, 1999). In 2016, nine out of ten enterprises in Europe alone used the Internet for business purposes; simultaneously, over two-thirds of these enterprises granted employees digital devices to improve information sharing efficiency among themselves (Eurostat, 2017).

Moreover, the advancement of technology has facilitated the production of digital information (Benselin & Ragsdell, 2016). Thus, today there is more information available than ever before, and its growth is predicted to continue. According to Cisco Systems, the amount of digital information produced by companies and individuals could reach 507.5 ZB by 2019 (Cisco Systems, 2015).

Today, employees have more access to information (Premuzic, 2014) and they can, without difficulties However, even with the help of technology, employees are not yet ready to effectively manage large amounts of digital information, which vary in terms of quality and shape (Premuzic, 2014; Mitchell, 2017). This is because a greater number of them lack the critical-thinking skills needed to evaluate the quality of information found on the Internet (Lloyd, 2010; American Management Association, 2012; Stanford University, 2016; Romero, 2017). Regardless, numerous organizations continue to focus extensively on the adoption of new technology to support the management of information and not enough on the development of information literacy skill among employees (O'Sullivan, 2005; European Commission, 2016; Benselin & Ragsdell, 2016; Mitchell, 2017).

However, for an organization to remain competitive in today's digital era, it takes more than a workforce with the basic technical skills to use hardware and software (Chinien & Boutin, 2011). Employees need information literacy (IL) skills to successfully access, organize, evaluate and use information in problem solving as well as decision-making, and for sharing information responsibly (Bruce, 1999; Eshet, 2012). Therefore, employees should be entitled to support in the development of IL skills in the workplace (Chinien & Boutin, 2011).

Moreover, despite the concept of (IL) having been widely studied in the context of libraries and educational institutions, the same study has not occurred as widely in the workplace context. (Bruce, 1999; Webber & Johnston, 2000; Kirton & Barham, 2005; O'Sullivan, 2005; Lloyd & Williamson, 2008; Lloyd, 2010). Therefore, all the above serve as motivation to study the concept of IL in the digital workplace.

1.1 Study aims

Because of the rapid growth of digital information and workplace digitization, this study aims to investigate how IL is perceived by employees and how the development of IL skills is being promoted in the digital workplace. Thus, the study focuses on the two following questions: (1) How do employees in the digital workplace perceive IL skills? (2) How is the development of IL skills being promoted in the digital workplace?

1.2 Structure

After the introduction in Chapter 1, the study continues by defining the digital workplace in Chapter 2, and IL and coinciding concepts in Chapter 3. Next, Chapter 4 explores IL in the workplace context and Chapter 5 examines IL in the digital workplace. Following, chapter 6 discusses the promotion of IL skills in the workplace, Chapter 7 presents the research method, Chapter 8 explains the data analysis and findings, Chapter 9 is the discussion, and Chapter 10 offers the conclusion and recommendation for future research.

2 Digital workplace

This chapter presents the concept of digital workplace and issues related to technology use in the workplace.

2.1 What is the digital workplace?

In 1998, Hewlett-Packard introduced a printer model called Digital Workplace which rapidly gained popularity among different types of businesses. However, regardless of its popularity, the company decided to terminate production of the model. In consequence, the term used for naming the printer model was abandon and forgotten. The term then reappeared in 2009 when Paul Miller used it to describe the rise of a new work environment that was heavily based on technology. (Benson, et al., 2002; Chinien & Boutin, 2011; Miller & Marsh, 2016)

The rapid development of technology and the arrival of advanced communication and collaboration tools have had an enormous impact on the workplace (Benson, et al., 2002; Miller, 2012). Increasingly, organizations around the world are using technology to improve employees' productivity and efficiency in the workplace. For instance, in 2016 nine out of ten enterprises in the EU used the Internet for business purposes and over two-thirds of these enterprises gave their employees mobile devices to access the Internet (Eurostat, 2017) and other digital tools to be used for various work purposes (Benson, et al., 2002; Oldham & Silva, 2015). As a result, the traditional ways of working are being gradually abandoned in favor of digital technology (Mulki, et al., 2009; Rander, 2016; Miller & Marsh, 2016).

Moreover, Miller (2012) argues that a digital workplace is a space based on technology, where a variety of tools are used to help the work processes. Miller and Marsh (2016) argue that a digital workplace is nothing more than a digital copy of the physical workplace. They then define the digital workplace as an environment created with a set of tools that are provided by an organization to facilitate the achievement of tasks performed by the employees at work. These include e-mail, telephone, instant messages, Internet, cloud, video, Intranet, collaborative spaces, micro-blogs, human resources systems, mobile applications, unified communication tools, software packages,

smartphones, tablets and document sharing software (Benson, et al., 2002; Miller, 2012; Oldham & Silva, 2015; Miller & Marsh, 2016).

2.2 The importance of technology and challenges in using it in the workplace

The importance of technology for managing information has long been recognized in the business environment (Eisenberg, et al., 2004). Nevertheless, today's technology is even more important for facilitating the management of information than it was in the past. For this reason, employees' IL skills need to be developed (Bahadur & Yadav, 2015), so they can use today's available technology effectively (Velde, 2009, p. 69). According to Goad (2002), IL skills can facilitate the use of diverse computer programs and other digital tools, can facilitate access to internal and external information, and can enable quicker information sharing across the organization.

Shah, et al. (2012) argue that the use of technology is inevitable because of its high availability in the workplace. Technology is so widely available that employees are in constant contact with all sorts of digital tools, which are used daily for finding, accessing, organizing, processing and distributing information inside and outside the workplace. However, despite all the advantages of technology, employees sometimes lack the technical skills necessary to perform their job using the digital tools that are often available in the workplace. Pemberton and Robson (1995) in a study on computer skills development in the workplace, found that employees do not confidently use computer programs such as spreadsheets to process data because they lack basic computing skills. Moreover, Galbreath et al. (1998) found in their study that employees do not take full advantage of computer programs to perform their daily tasks. In another study, Shah, et al. (2012) found that most of the employees in the commercial banks of Kuala Lumpur in Malaysia suffered from computer anxiety because of the rapid introduction of new technology in the workplace and because they lack the computer skills needed to perform their jobs effectively.

Moreover, a report released in 2015 by the Organization for Economic Co-operation and Development (OECD) shows that there is a significant difference in the level of computer skills between young and elder employees in the workplace. Based on the report, young

employees typically use a variety of digital tools with little struggle; however, they do not perform well in places where the use of complex technology is necessary for completing a variety of tasks (OECD, 2015). In addition, Maurer (2016) argues that young employees may also lack other skills, such as communication, critical thinking, problem solving, leadership, teamwork and work ethics. Though older employees may perform better in places where complex technology is used for completing a variety of tasks, they may face more challenges than young employees in using new technology for performing simple tasks in the workplace (OECD, 2015).

Goad (2002) argues that the lack of technical skills among employees is caused by rapid technological development. He then adds that the advancement of technology causes some of the employees' existing skills to become obsolete. However, there are other factors promoting the lack of technical skills among employees. In addition, he argues that employees' skill levels will be determined by the time and place where technology is introduced. The time in which new tools are introduce is very important, because the earlier a new technology is introduced, the easier it will be for an employee to keep up with the development of technology. The place where technology is introduced is also very important, because the context in which technology is introduced is critical for determining the type of skills an employee will require to manage information effectively. In addition, the employees may have difficulty using technology because of a lack of understanding or because of the unavailability of certain tools in the workplace.

Regardless, as technology becomes faster, smaller, more powerful and more complex, organizations and their employees will have more difficulties to use it effectively. However, employees who lack the necessary support to help them develop the skills and capabilities needed to make successful use of technology will be the most harmed (Goad, 2002; Eisenberg, et al., 2004). Pemberton and Robson (1995) suggest that it is important to frequently evaluate the employees' skills and to offer advanced training to ensure the development of practical skills. Moreover, Shah, et al. (2012) add that it is also important to increase interaction between employees to help them cope with computer anxiety (Shah, et al., 2012). However, several authors have argued that most organizations do not give enough attention to the development of IL skills among employees in the workplace. Instead, the organizations heavily invest in new technology and solutions that they

believe will facilitate information management in the workplace (Lang, 2001; O'Sullivan, 2005; Saulles, 2007; Lloyd, 2010; Chinien & Boutin, 2011; Mitchell, 2017).

The decision to invest heavily in technology and lightly in the development of employees' IL skills can result in an inability to remain competitive (Bawden, 2001; Chinien & Boutin, 2011). Moreover, several information experts have been questioning whether the ability to use technology will be enough for people to survive in the era of digital information. Perhaps it will not be enough to overcome all the challenges involved in the management of information, but it certainly will facilitate the management process after all the skills required are fully developed (Goad, 2002).

Therefore, employees should have both the technical skills to use technology and IL skills for an effective and efficient information management, especially when technology alone is not enough for creating competitive advantage in the digital economy of today. Thus, it is essential that employees have the right skills that will enable better information management in the workplace. (Chinien & Boutin, 2011)

As explained in this chapter, employees continue having difficulties in managing information effectively in the workplace, regardless of the technology support, indicating that technology alone does not facilitate information management. It also indicates that there are many factors influencing how people use technology, such as place, time and age. Furthermore, it shows that skills from one context may not always easily fit into another. It also shows that support to help in the adoption of new skills is required, thus both IT and IL should receive an equal amount of attention in the workplace to enable successful management of information in the digital workplace (Chinien & Boutin, 2011).

3   Concepts information literacy

Chapter 2 has discussed briefly the concept of digital workplace. In this chapter, several definitions of IL and the definition of related literacies are discussed.

3.1   Information literacy

Paul Zurkowski introduced the concept of IL in 1974. He argued then that if a person goes through a set of training to acquire IL skills, then this person is to some degree information literate. However, it requires the complete development of IL skills for a person to become fully recognized as an information literate. (Bawden, 2001; Eisenberg, et al., 2004)

Initially, the concept of IL was focused mainly on the basic level of reading and writing and in the ability to sign a document. This definition was extended to include the ability to "…speak in English, calculate and solve problems…" (Bawden, 2001; Welsh & Wright, 2010). Nevertheless, since Paul Zurkowski introduced the concept of IL in 1974, librarians have been mainly studied in the library context (Webber & Johnston, 2000). Eisenberg, et al. (2004) argue that librarians have always been concerned with the rapid growth of information coming from a variety of sources and the people's inability to manage and take full advantage of that information.

Therefore in 1989, Margaret Chisholm, the president of the American Library Association (ALA) suggested that a person should be able to recognize when there is a need for information and be able to find, evaluate and organize, and use the information correctly. Hence, a person should be aware of the relevance of IL for knowledge creation and for improving problem-solving and decision-making skills, and, most importantly, a person should recognize the importance of IL for lifelong learning (ACRL, 1989; Eisenberg, et al., 2004). Then, following Margaret Chisholm suggestions, the American Association of School Libraries (AASL) added that a person should have the ability to locate and use information effectively and efficiently for problem solving and decision making (Eisenberg, et al., 2004).

Moreover, Grassian and Kaplowitz (2005) argue that, a person should be able to recognize when information is needed and can locate, evaluate and use information where this is needed. Furthermore, Lankshear and Knobel (2008) argue that IL is the ability to find and use information while quickly collecting more information for future use. Then, Welsh &Wright (2010)define IL as "…a set of abilities which allow individuals to recognize when information is needed, where and how to locate, evaluate, and use information effectively, and it is part of a lifelong learning process." Additionally, Lloyd (2010) and Lloyd and Talja (2010) argue that an information literate person should know how to access information, use critical thinking to evaluate sources, authorship, the purpose and the context in which information takes place and, in addition, use his or her own knowledge to find gaps and compare logic to ensure the quality of the information.

Kurbanoglu et al. (2010) argue that it is the combination of all literacy skills including reading, writing, speaking, calculating, and problem-solving, together with library skills, searching, organizing, analyzing, evaluating, distributing and technology skills that forms IL and enables lifelong learning. Furthermore, the Chartered Institute of Library and Information Professionals (CILIP defines IL as the ability to know why and when a person needs information, and where to find, how to evaluate, use and distribute information ethically to others (CILIP, 2013).

However, several other definitions have been created in response to the rapid development of technology. For instance, Doyle (1992, p. 24) includes technology in her definition of IL. She argues that an information literate person is someone who can recognize when there is a need for information; knows how to formulate questions to obtain the information needed, knows how to search for information strategically, can "... access, evaluate, and use information from a diverse number of sources", can use technology effectively to access, organize, and evaluate information, understands the impact of reliability and accuracy of information sources on problem solving and decision making, and comprehends the importance of using existing knowledge when critically judging information.

Shapiro and Hughes (1996) offer another definition of IL; they define IL as the art of knowing how to use a computer to access information and to facilitate critical evaluation of information. According to the American Library Association (ALA), technology facilitates information management by enabling people to use all sorts of hardware, software, and databases to achieve a variety of tasks (ALA, 2000). Therefore, the technology works as a set of supporting tools used to assist information management.

However, IL involves more than the use of technology. IL includes the ability to search, analyze, and evaluate and make proper distribution of information. According to McClure (1994), IL is a combination of different literacies, which includes computer literacy, media literacy, and network literacy. Bawden (2001) has a different opinion. He argues that different terms are used interchangeably to describe IL; these include computer literacy, digital literacy, media literacy, and network literacy among others. Therefore, they are not separate literacies of IL, but only different terms based on context. Additionally, Bawden (2001) argues that new concepts will be developed to help people cope with the fast expansion of information and development of technology.

Regardless, Eisenberg, et al. (2004) suggest that it is important to include all other concepts that have helped form the IL concept when studying it. Therefore, the concepts of computer literacy, digital literacy, media literacy, and network literacy will be presented next.

3.2   Computer literacy

Computer literacy is a set of skills that a person learns and develops over time. It enables a person to use a computer and the Internet for finding information, computer programs for processing data and information, and all sorts of communication tools for sharing information. (Bawden, 2001; Eisenberg, et al., 2004; Gwyer, et al., 2012). This also includes being able to log into a social media account, to produce and to communicate digital information (Stair & Reynolds, 2015, p. 37). According to Bawden (2001, p. 226), a computer literate person knows how to differentiate "... between a word processor, a text editor, a spreadsheet, a database program, a local hard disk drive and a networked file server," and understands how a machine works to facilitate the management of data

and information. Moreover, a computer literate person should know how to use a computer independently to overcome all types of information management problems. In other words, a person needs to know how to use a computer beyond the simple action of switching it on.

Eisenberg, et al. (2004) also argue that the ability to use computers or other information management programs and tools may vary among people, as these skills are often taught based on context and personal needs. Furthermore, Bawden (2001) argues that IL and computer literacy have many similarities, and they depend on one another to work successfully. Despite the similarities that exist between the two concepts, computer literacy should be looked upon as a compliment to IL (Kurbanoglu, et al., 2014). Therefore, a person should develop both IL and computer literacy skills to become fully recognized as information and computer literate.

3.3   Digital literacy

Digital literacy is a term used interchangeably with IL. In 1997, Paul Gilster introduced the concept of digital literacy that is most widely accepted today. At that time, Paul Gilster described digital literacy as the "ability to understand and to use information from a variety of digital sources." (Bawden, 2008, p. 19) This digital literacy concept and its core competencies have received criticism for being developed based on Paul Gilster's personal and informal opinions (Bawden, 2001; Thompson, et al., 2014). Despite the criticism, the core competencies used to describe a digitally literate person are present as follow. A digitally literate person will use critical thinking to analyze and evaluate online information; will read and understand non-sequential hypertext information; will gather and create reliable content from diverse sources while considering bias; will search for information strategically; will use search engines, advanced search, and filtering tools to find information; will seek help from an online network; will develop questions to fulfill the information need; and will use a browser's tools to save content; will judge the validity and completeness of the material referenced by hypertext links (Bawden, 2001, pp. 247-248).

According to Meyers, et al. (2013), a digital literate person should know when and how to use digital tools and other resources to satisfy one's information need, and how to use search techniques to find information quickly. Additionally, a digital literate person should know how to evaluate digital information to ensure its quality, currency, relevancy, accuracy, and logic and credibility before creating new information to share with others through different communication channels.

Lankshear and Knobel (2008)) argue that a person with fully developed digital literacy skills will quickly connect and switch between media and will consolidate and share information using different communication methods. Hence, a digitally literate person will use all kinds of technology to locate, manage, evaluate, and manipulate electronic information from diverse sources (Boechler, et al., 2015, p. 231).

Additionally, Bawden (2008) argues that digital literacy is the ability to understand and use a variety of information formats presented through a computer. Regardless, Eisenberg, et al. (2004) argue that digital literacy is a concept that has emerged from the rapid growth of digital resources. They further stress that digital literacy is mainly concerned with the easy access to digital information resources through the Internet and that there is a need for critical evaluation of these resources.

Attempting to compare digital literacy with other literacies, especially IL. Koltay (2011) found that it takes several literacies to give shape to digital literacy. He then argues that it would be pointless to try to search for similarities or differences between digital literacy and the other literacies. Therefore, it may be acceptable to say that IL and digital literacy are about the same, as both are focused on the successful and efficient location, evaluation, management, and communication of information (Kurbanoglu, et al., 2012, p. 28). As matter of fact, these similarities are visible in the information literacy and digital literacy models, created by the Society of College, National and University Libraries (SCONUL) and found in Appendices 1 and 2.

3.4   Media literacy

According to Lankshear and Knobel (2008), media literacy is the ability to create new information by reshaping it. Hence, a media literate person can access, analyze, evaluate,

and reproduce different formats of information, and share it through both electronic and non-electronic media (Christ & Potter, 1998, p. 311).

Moreover, Eisenberg et al. (2004) argue that a media literate person can easily interpret messages transmitted through all types of communication channels, including television, radio, electronic images, music, magazines, printed and electronic news. Additionally, Livingstone (2010) defines media literacy as the"... ability to access, analyze, evaluate, and create messages in context" that others can understand. Likewise, Welsh and Wright (2010, p. 107) define media literacy "… as the ability to decode, analyze, evaluate, and produce communication in a variety of forms." Furthermore, Welsh and Wright (2010) argue that a media literate person can recognize when information is influenced by emotion and misinterpretation and when it is unreliable. Thus, a media literate person will carefully check the reliability of information sources and the intentions behind the information he or she obtains and will respond to verbal and visual arguments effectively. Hobbs (2010) goes on to argues that to become recognized as both digital and media literate, a person would need a set of five essential competencies; these include access, analysis/evaluation, creation, reflection, and action. Access refers to the capability to find and use both technology and media for sharing relevant information. Analysis and evaluation refer to the ability to think critically while analyzing and evaluating the quality of information, especially information accuracy and the credibility of the author. Creation refers to the confidence and creativity when expressing thoughts and attention purpose, format, and audience when creating and sharing information. Reflection refers to the level of social responsibility and the awareness of ethical values when sharing information. Action refers to the capability to work both independently and in collaboration with others in order to share useful knowledge that is used in problem solving and the ability to participate in all virtual communities. (Hobbs, 2010, pp. 18-19)

Regardless, what unites media literacy with IL is their mutual need for critical thinking, to evaluate the quality of information that people consume (Koltay, 2011).

3.5   Network literacy

Network literacy is defined as an extension of the traditional reading and writing skills, and the ability to use an electronic network to access, create and communicate information inside and outside a network (Mcclure, 1994; Gamble & Easingwood, 2001; Lin & Chen, 2010; Gigler, 2015). According to Bawden (2001) being network literate involves knowing how to use a variety of collaborative networks to obtain information. Additionally, a network literate person will understand how information obtained from collaborative networks influences the process of problem solving and life events. Also, a network literate person will know how to create, organize, and share information through a collaborative network and how to use information from diverse networks, to help in the decision-making process. Furthermore, Bawden (2001) warns that a person should not confuse network literacy with IL. Instead, a person should look at it as a complementary competence to other competencies that interconnect with IL.

Several concepts have already emerged from the traditional literacy and IL. Nevertheless, as technology advances quickly, new ones will continue to appear (Koltay, 2011). Therefore, not all concepts that exist in the body of knowledge are present in this study. However, the present concepts form the competencies required for the effective management of information in the digital environment. In other words, the skills needed for facilitating the discovery, organization, evaluation, and distribution of electronic information in the workplace (Goad, 2002) and to ensure its ethical use in the digital environment.

The definition of IL takes different shapes based on context. Therefore, it is not possible to study IL by using a single definition, and because this study involves IL in the digital workplace context, it may be appropriate to use the digital literacy definition, because of its resemblance to IL literacy and the other literacies. Hence, the definition of digital literacy provided by (SCONUL) will be used as a base for this study.

Table 1: Seven Pillars of Information Literacy through Digital Lens (SCONUL)

Identify	a person should recognize the important skills in locating, managing, creating, and sharing information through a variety of digital forms, identify gaps relating to the use,

	application and development of the digital environment and tools, and recognize where digital technology can meet a specific information task or need.
Scope	identify gaps in knowledge relating to digital tool or content, identify search tools for locating high-quality digital material, access different digital formats and select those to meet the current need, use new tools and technology as they became available and evaluate them for sustainability, access how online collaboration enhance academic practice.
Plan	identify appropriate search techniques, remotely access external digital sources to extend opportunities for discovery, assess which forms of digital media best meets the criteria identified, use different online communications approaches to extend and reach, assign meta-data tags to the content, enable future discoverability of information.
Gather	use a range of digital retrieval tools and technologies effectively, access, read and download digital information and data, engage in online collaboration and networking to access and share information.
Evaluate	assess the suitability of digital content for the intended audience, assess the quality, accuracy, relevance, credibility, format, and accessibility of digital material, read online information critically, considering access restriction, maximize discoverability of one's own digital material using indexing strategies.
Managing	use appropriate tools to organize digital content and data (social bookmarking, bibliography software, cite and reference electronic sources appropriately, managing digital resources effectively while considering version control, files storage, and record keeping issues. Personalize the digital environment according to need.
Present	communicate effectively in a digital environment, using appropriate tools, to meet audience needs while considering accessibility issues, confidentially use digital media appropriate for presentation, develop an online personal profile using appropriate networks and technologies, stay safe and, if necessary, private in the digital world, select appropriate publication and dissemination channels to share information.

Source: (SCONUL, 2016)

From all the definitions presented, it seems that IL will take different forms depending on context. Therefore, it gives the impression that the way people perceive IL will depend on the context in which the concept is introduced. Additionally, it appears that IL involves more than the simple use of technology, it also includes the individual's ability to search, evaluate, manage, and use information successfully and the ability to continue learning new skills as life progresses (ALA, 2000). Thus, the main point here is that

technology and individual knowledge must be assessed to ensure proper management of information and decision making in the workplace (Goad, 2002; Koltay, 2011)

4 Information literacy in the workplace context

The literature review started by looking at the digital workplace concept and proceeded to present the IL concept and other synonymous concepts, and now in this chapter, the focus is on showing how the IL concept takes place within the workplace.

An example will be used to demonstrate the importance of IL in the workplace. Imagine a medical doctor who works at a hospital and whose job it is to collect information from patients by critically evaluating the symptoms to discover the cause of a problem. To evaluate their symptoms, the doctor utilizes his knowledge to confirm the probable cause of the illness and then relies on external information to support his assumptions. As evident in this case, the doctor would need both inside and outside knowledge to reach a conclusion and decide which treatment to recommend to a patient. To rely entirely on his understanding or entirely on external information would not be enough. However, by analyzing and evaluating both internal and external sources of material, a doctor can gain enough accurate information to choose which treatment to use. Despite the quality of internal material, the medical care chosen based only on inside sources may be unsuitable for some patients. Consequently, external information may be needed for deciding on the most appropriate medical treatment to use. Importantly, if both internal and external information sources used by the doctor are of inferior quality, it would lead to wrong decisions and terrible results for the patient under his treatment. (Dalton, 2013) It is noticeable from the example that several aspects of information literacy are used daily by employees in the workplace, including searching, and both analytical and critical thinking skills.

In 1997 Cristina Bruce did a research on a group of employees from different business areas to see if the employees were using information in the workplace effectively. By carefully focusing on the IL concept Bruce concluded that IL was not experienced equally in the workplace. She argued that there are seven different ways of experiencing IL in the workplace. (Bruce, 1999, pp. 36-42)

Bruce's seven (faces) or ways of experiencing IL in the workplace are presented as follows: In phase one, an employee will use technology for gathering and sharing information inside and outside the workplace. Then, Bruce (1999) argues that technical

skills are relevant in this face to facilitate access to information. Here an employee will engage in communities to maintain the developing technical skills required to keep up with the progress of technology. The lack of participation in the community of practices can contribute to isolation, in this way preventing an employee from keeping up with the pace of technological development. In phase two, an employee will experience IL by recognizing the importance of information sources. Bruce (1999) argues that here employees would need to familiarize themselves with the resources available to them, thus, helping to minimize their dependence on other people. In phase three, Bruce (1999) explains that depending on the context, the way an employee will process and resolve problems and make decisions will differ from one another. In the fourth phase, an employee will experience IL when needing to find information. Here, it is crucial for an employee to know who is responsible for facilitating information access in the workplace. Employees may also experience IL when structuring and organizing information for future access and use. In the fifth phase, an employee will critically evaluate the knowledge obtained. Here, an employee should look carefully into the information sources to recognize gaps in knowledge. In phase six, the importance of humans as a source of information arises. Here, Bruce (1999) argues that in the absence of technology to support the information search, an employee will seek alternatives to acquire the information needed. In this way, an employee may rely on internal sources of information such as the colleagues' knowledge. In phase seven, the employees' values, beliefs, knowledge, and working experience will influence how information is utilized and distributed in the workplace. (Bruce, 1999, pp. 36-46)

Bruce (1999) goes on to argues that information required by organizations comes from all types of places and media. Therefore, the development of IL skills should receive as much attention as the development of IT skills in a workplace. She claims that IT is a useful tool to retain employees well informed about social activities; however, today IT goes beyond facilitating social interaction and news broadcast, as it empowers employees to process more information (Goad, 2002). Therefore, employees in the digital environment need to develop IL skills to use information successfully with the help of technology (McMahon & Bruce, 2002).

4.1 The impact of context

According to Lloyd (2010), context is built based on history, culture, norms, values, practices, and tools. Therefore, the understanding of context is crucial in the workplace, especially when it helps people interpret the meaning of their surrounding environment.

The Cambridge University defines context as "… the situation, which something exists or happens, and that can help to explain it…" and …explain its meaning…" Thus, context exists as the basis to support understanding and sense-making. (Cambridge University , 2017)

According to McMahon and Bruce (2002), a complete understanding of context may facilitate more effective communication among employees and work processes in the workplace. Lloyd (2010) also believes that workplace contextual knowledge may have a beneficial impact on employees' performance. Nevertheless, McMahon & Bruce (2002) argue that the inability to adequately understand context can have a completely different effect on employees, influencing their work performance negatively.

Regardless, it may be wrong to assume that all employees have a similar level of contextual knowledge, it would be adequate to do this when all employees came from the same educational institution; however, because study material and tools vary from one institution to another, it may be inappropriate to draw such a conclusion. Additionally, the level of understanding and abilities required to complete a variety of tasks in an educational institution may differ among students. (Lloyd, 2010) In the workplace, this may be the same as skills and capabilities required to complete numerous tasks also differ among employees. Consequently, each employee develops unique abilities that will facilitate the use of technology and management of information in the workplace.

Moreover, Lloyd (2010) argues that the skills obtained from one place are not easily transferred to another location, because the skills and abilities required for performing a task will vary depending on the workplace. Transference of skills from one place to another is even more difficult because of the aspects of history, culture, norms, values, artifacts, and practices that form context and influence understanding in the workplace.

Hence, any sudden changes of these aspects may prevent a person entering a new environment from having the same level of performance as in a familiar workplace. Thus, a person entering a new workplace needs time to slowly begin learning new skills and adapting to the new environment. However, Lloyd (2010) argues that a person's adaptation process can occur quickly when a significant level of interaction exists between members in the new environment. Therefore, it is crucial for organizations to promote communication among employees at all levels to accelerate knowledge transfer and ensure good professional performance in the workplace.

4.2 The importance of interaction and collaboration between employees in the workplace

According to Lloyd (2010), when a new member encounters a highly collaborative and supportive environment, adaptation will occur more quickly. Similarly, a low collaboration environment and lack of support may negatively affect a newcomer's adaptation process. The collaboration and support are relevant for the development of the skills required to survive in a new environment where norms, rules, and practices differ. However, it is most important to be aware of the context to be able to recognize one's surroundings and events that take place within it (McDermott, 1999). According to McMahon & Bruce (2002), interaction and collaboration among employees during social activities are relevant for building an understanding of the context and development of new skills in the workplace. Lloyd (2010) argues that familiarization of context helps to determine the type of information and the skills required for effective management of information. Then, she argues, social, political and economic aspects determine how new practices and processes are accepted or dismissed in the workplace. Apparently, the close interaction between employees is necessary for facilitating the interpretation of context in the workplace (Dervin, 1997). Similarly, the distance between employees may create learning barriers among employees in the workplace. It is this robust sense of collaboration that generates trust among employees and induce them to consult each other when needing information (McDermott, 1999; Fieldhouse & Nicholas, 2008; Crawford & Irving, 2009; Lloyd, 2010). According to Dalton (2013), in a demanding working environment, an employee will often consult the closest available source of information,

in most cases the nearest colleagues. It happens because employees believe that information obtained from other colleagues is more reliable and accurate than existing data, for instance in the workplace database. Moreover, Dalton (2013) argues that employees tend to look for other sources of information, such as the Internet for answering questions in the absence of qualified colleagues inside their network. Regardless, Goad (2002) argues that the collaboration between employees may sometimes be problematic because of the variety of experience accumulated from a different context within the workplace. Additionally, other problems can occur due to the differences in culture, language, educational background, expertise and country of origin. Moreover, when it comes to IL, context affects how employees search, organize, analyze, evaluate, use and communicate information between each other in the workplace (Goad, 2002). Lloyd (2010) explains that IL in the workplace is holistic and experienced based on social-cultural aspects and close interaction between employees. Therefore, the way an employee perceives IL will differ from how employees from another environment perceive it. Furthermore, Greenfield (2014) argues that employees who lack contextual knowledge will have difficulties using critical thinking to perform their tasks at work.

4.3   Critical thinking

The main aim of an organization is to succeed, but with employees lacking cognitive and IL skills, it may be difficult to succeed in the digital environment (Lloyd, 2003). Critical thinking enables employees to find accurate and current information used for problem-solving and decision making in various organizations (Goad, 2002).

Critical thinking is a process which allows a person to critically assess one's opinion by questioning, listening, informing and interpreting thoughts and ideas (Goad, 2002). Furthermore, critical thinking may be defined as the process by which a person uses his intelligence to develop thoughts, analyze, evaluate and combine diverse ideas as well as the ability to use information for judging, concluding and answering questions (Spencer & Millson-Martula, 2014, p. 22). According to Koltay et al. (2016, p. 73), critical thinking is the ability to distinguish between facts and opinions, evaluate assumptions, find causes, explanations, and solutions, recognize the reason behind information, and distinguish between reliable and unreliable sources of information.

Goad (2002) provides an example of how IL relates to critical thinking. For instance, imagine an electronic store employee taking care of an issue with a smartphone. It all starts with the employee listening to the customer and interpreting, questioning for more details, analyzing the problem, evaluating the situation, validating the existence of the problem, determining, proposing a solution and sharing the information acquired to a supervisor to gain authorization to act. The employee first gathered information through listening and then interpreted it. Next, the employee analyzes and evaluates the information collected. Then, he recognizes that there is a need for more information. He then interviews the customer further to gain more detailed information in order to understand the problem better. Next, he checks the product to validate that there is either a technical problem or a customer inexperience with using the device. After validating the problem, the employee then decides which solution would be best to solve the issue. If the existence of a problem is confirmed, then the employee must choose between replacing the defective device with a new device or sending it to be repaired. Each alternative would require the employee to gather more information. Additionally, he would have to consider whom to ask for authorization to undertake the decisive action. In the process, he would be required to share information with other employees, either verbally or by using communication technology to assist in the process.

Moreover, Goad (2002) argues that IL is essential for facilitating the entire thinking process while processing information, as it enables a person to save more time to invest in the analysis and evaluation of information. Then, he explains that strategic thinking is part of a process where cognitive skills are used during the analysis and evaluation of complex information and systems to overcome obstacles that prevent the successful completion of tasks in the workplace. Hence, during the analysis process, a person uses several techniques, contextual knowledge, beliefs, values and interpretations to make sense of raw data, information, tools, and systems used to process the material gathered from diverse sources (Choo, 2001; Goad, 2002).

Furthermore, most actions that are taken by employees in a workplace are the result of their ability to think and reason; thus, the inability to do so can have serious consequence for an organization (Goad, 2002). Fallon (2014) argues that employees at all levels of an organization often act impulsively under time pressure. In consequences, this thoughtless

reaction from the employees frequently results in the production of inadequate work. Hence, additional time is often needed to correct errors caused by the employees' improper evaluation and use of information. Consequently, the extra time wasted reviewing and correcting mistakes affects the decision-making process and competitive performance of employees in many organizations. Therefore, critical thinking skills are skills that employees in an organization cannot afford to be without (Goad, 2002).

The rapid implementation of digital technology in the physical workplace changed the way employees used to do their job. Instead of performing tasks manually, employees now have technology to assist them. However, more than ever, they need to use critical thinking to process complex information that organizations use for decision-making and creation of value (Chinien & Boutin, 2011), because, the same technology that today enables better communication and collaboration in the workplace (Miller & Marsh, 2016), gives employees access to an environment infested with an unlimited variety of digital information (Benson, et al., 2002; Chinien & Boutin, 2011). It is all this unevaluated, unlimited, and unstructured digital information that raises concerns and makes the concept of IL crucial for organizations choosing to digitalize the workplace and give employees more freedom to manage information on their own (Chinien & Boutin, 2011).

Regardless, people of all ages, whether they are currently working or starting a new job, lack the necessary level of critical thinking skills to manage information in the workplace, especially the critical-thinking skills needed to analyze and evaluate web-based information (Lloyd, 2010; American Management Association, 2012; Stanford University, 2016; Romero, 2017). However, employees need to develop critical thinking for analyzing and evaluating printed and digital information successfully and for obtaining current, accurate, and reliable information required for decisions in the workplace (Goad, 2002). Hence, one way to improve the development of critical thinking skills in the workplace is to increase collaboration and knowledge sharing among employees (Gokhale, 1995; Goad, 2002; Hobbs, 2010). According to Gokhale (1995) when a group of people is granted space to share knowledge, this leads to an improvement in the critical-thinking skills of every group member. However, the promotion of critical-thinking skills in the workplace is usually limited due to the workload that takes most of

the employees' time (Hobbs, 2010; Fallon, 2014). Thus, the need for intervention to ensure that employees continue to learn and develop the IL skills that are required to enable effective and efficient management of information is incontestable. Only then, will employees be able to generate value and prosperity for the organizations. (Chinien & Boutin, 2011)

Bruce (1999) may be correct in arguing that IL is experienced by employees differently. Based on the arguments above, context influences the way they make sense of the work environment, materials, tools, practices, and behaviors. Therefore, it is crucial that an organization facilitates the interaction and communication among employees, so they develop contextual knowledge and critical thinking skills. Additionally, the development of critical thinking skills among employees is necessary for facilitating the analysis and evaluation of printed and digital information in the digital workplace.

5 IL in the digital workplace

This chapter examines how IL takes shape in the digital workplace. It reviews several processes, such as evaluation, organization, and distribution of information, and then quickly observes the effects of context and critical thinking in the workplace.

Long ago, it was only possible to connect to the Internet by using a computer inside a physical space, mostly inside an organization that had the capital to afford the modern technology. Additionally, this type of technology was available only for a small group of people. (Benson, et al., 2002) However, the price of technologies such as computer, tablet and smartphones has been falling, making it affordable enough for anyone to buy. As a result, it is now normal for most people to possess digital devices and be connected to the Internet. (Miller, 2012) Additionally, the amount of information produced in the past was relatively small and easy to manage compared to what exists today (Benson, et al., 2002). In the past, design changes made on the World Wide Web gave it a new purpose, and today the web is used for content consumption and for connecting people through a digital environment where efficient communication and collaboration is possible (Cormode & Krishnamurth, 2008). Today, any person who has a digital device can produce and distribute information on the World Wide Web through the Internet.

It becomes clear that current technology used for information management is available to all employees across an organization (Goad, 2002; Miller & Marsh, 2016). According to White (2012) and Miller & Marsh (2016), the advancement of technology has helped employees to have access to more information and digital tools which facilitate communication and collaboration and the successful completion of their work. In fact, the interaction, collaboration, and information sharing between employees have improved thanks to digital technology. According to the (OECD, 2016, pp. 31-37), today employees can do more in less time, and no walls exist that would prevent them from reaching each other for help to resolve problems. Moreover, employees have easier and faster access to data, information and implicit knowledge to make quicker decisions. Additionally, technology has helped to facilitate knowledge transfer by enabling a learning culture environment, and today employees can work virtually in teams using different digital tools to facilitate the learning process.

Moreover, technology allows employees to freely perform their job without managerial supervision, which means that nobody is present to see whether they are ethically using the information to achieve their goals. Because today most employees have one task or more that requires information for its successful completion, employees at all levels of an organization need to know how to use information adequately. (Miller & Marsh, 2016) As virtual interaction and communication improve, employees will need to develop better writing, reading and critical-thinking skills. These skills are essential, for instance when employees want to ask questions and to acquire, manage and distribute information to each other and across the workplace. Therefore, IL skills are critical for employees participating in the digital environment. (OECD, 2016, pp. 33-37)

5.1   Evaluating

Moreover, the easy access to advanced technology such the Internet and the constant organizational changes that have been occurring in numerous organizations have changed the way employees search for information. Instead of using an organization's existing knowledge as their first choice, today employees will often choose to use the Internet and personal contacts as their primary information sources. (Nardi, et al., 2000) The information obtained from these sources is not always accurate or reliable. Therefore, employees need to carefully analyze and evaluate all types of information to ensure its quality.

Today, information is not structured or regulated as it was when technology was only available for a limited number of people. Therefore, employees need to focus more on the quality of information they obtain and receive from all types of information sources. As the amount of information grows, employees need to have IL skills to perform their tasks successfully in the digital workplace, especially the critical-thinking skills required for evaluating the quality of information accessible through all types of communication devices and channels. (Lewis, 2002; Koltay, 2011)

5.2   Organizing

As many organizations often use information resources that vary in format, appropriate procedures for how to organize information must be followed by employees to facilitate

the future access and retrieval of information (Chowdhury & Chowdhury, 2007). Employees need to know how to organize the information they gather and create so that it can be easily accessed, located and used when needed.

To better understand and envision how an employee downloads a file from the Internet to a computer is necessary to describe each step of process. During the downloading process, the computer system gives the employee an option to store the information on a folder located on the computer. Subsequently, the file is either stored in the download folder automatically or manually by the employee in some other folder such as desktop, pictures, or music. When manually saving a file, it is up to the employees operating the computer to decide where to store the information and how to organize it. Choosing the right methods of organizing information can help the employees later to identify pieces of information that relate to one another and help them to separate those that do not. However, all employees have their unique ways of organizing information, sometimes organizing digital material at work, as they would do outside the workplace, instead of organizing information into groups of classes such as ranks, year, location, subjects and alphabetic order to facilitate its access and use. (Chowdhury & Chowdhury, 2007)

Furthermore, Chowdhury and Chowdhury (2007) argue that a computer system allows employees to customize the way information is organized in the computer, thus allowing them to find information quickly using customized keywords. This may work for finding digital material stored in a personal computer, but when it comes to web search engines, it may be complicated because online information is messy and often classified automatically with the help of algorithms, making it difficult for employees to access and find the needed information successfully.

5.3   Sharing

According to Bothma et al. (2008), it is acceptable for employees to share public information with each other. However, not all information available on the Internet is free to share, and it is inappropriate to share someone else's work without proper consent. Nevertheless, because technology allows free access and distribution of all types of content on the Internet, it may be difficult for an employee not to infringe on the

copyrights and intellectual property of someone else's work. The digitization of information has helped to facilitate its replication and distribution. However, most information out there is protected, and this is not limited to books and academic journal articles; copyright also applies to software, games, music, and pictures.

As collaboration improves, employees will share an increasing amount of information. This is the idea of the digital workplace: to enable faster access and distribution of information (Raman, 2004; Perdew, 2016). Numerous organizations encourage their employees to write blogs. This type of informational website is adopted because it allows employees to display all sorts of information in various formats, such as text, videos, pictures, and audio, making it an attractive method to use when communicating information through media. However, it is crucial for employees to share information responsibly when adding content to their blogs. Therefore, employees will need to ensure that they have the authorization to use someone else's work before applying it to their blogs. (Moseley & Dessinger, 2009) Additionally, they must ensure that digital information is responsibly distributed when using communication and collaborative tools such as e-mails, online fora and social media (Sender, 2016). According to Sender (2016), e-mail, among many other collaborative devices, is the most used tool for sharing information among employees in the workplace. He then adds that employees may not follow copyright and intellectual property guidelines when sharing information using communication tools, because they are often unaware of their existence. Regardless, employees must understand that ethical rules exist, and they must respect those rules, independently of the tool and methods used for communicating and sharing information in the workplace (Raman, 2004; Perdew, 2016).

5.4   Context and digital information

Technology has changed the way people communicate information. In the past, information was recorded on paper, controlled and locked inside libraries. However, today the information is accessible in digital form, uncontrolled and freely available through the Internet. These vast amounts of easily accessible information certainly facilitate the acquisition of knowledge. However, the published information online is formed by the local contextual understanding of individuals from different parts of the

world. Thus, most of this information consists of unrelated beliefs and perceptions of different individuals. (Lankshear & Knobel, 2008) Consequently, employees in the digital workplace must critically evaluate the quality of digital material that they obtain from the Internet before consuming it at work. Nevertheless, it is speculated that employees randomly search for information using web search engines without considering the context in which the digital material is formed (Hargittai, 2005). Therefore, with the digitization of information enabling faster replication and distribution of it through the Internet, it is essential that organizations promote the development of critical-thinking skills among employees (Goad, 2002; Fallon, 2014). Moreover, Hargittai (2005) argues that technology can facilitate the information search process. However, it may not guarantee employees will successfully navigate online, because although some employees can effectively use technology to gather information, it does not make them information literate. Thus, employees need to have the analytical skills to evaluate the quality, value, and reliability of information in the digital environment (Fieldhouse & Nicholas, 2008; Lloyd & Talja, 2010). Meyers et al. (2013) argue that digital literacy capabilities, which in this study are referred as IL skills, are needed to use and share digital material.

6 Promoting and supporting IL skills in the digital workplace

In this chapter, some ideas on how an organization can promote IL in the workplace are presented. It also considers the importance of training and support available in the workplace.

According to Meyers et al. (2013), facilitating the development of IL skills is no longer only the responsibility of the libraries and educational institutions. Moreover, he argues that in an educational institution, students have the privilege to receive help from teachers and librarians to develop the IL skills they need. However, some students leave the educational institutions without fully developing their IL skills, and those who do fully develop these skills will not carry them to the workplace (Kirton & Barham, 2005). Thus, when entering the workplace, young employees often encounter difficulties in managing information (Dalton, 2013). The situation is aggravated when young employees realize that the previously offered support is no longer available for them (Lloyd & Talja, 2010). Learning on their own, young employees find it even more difficult to cope with the amount of information available to them to manage (Zhang, et al., 2010). Therefore, as students become employees, they need to be able to continue developing IL skills based on the context with which they are familiar in order to manage information successfully in the workplace (Lloyd, 2010). However, to accomplish this objective, an organization needs to invest in the promotion, training, and support of IL skills inside the workplace (Lloyd & Talja, 2010).

According to Hobbs (2010), organizations should promote IL skills formally and informally in the workplace for all employees. Moreover, the development and training programs should be aimed at improving employees' ability to access, find, organize, analyze, evaluate, and create new information, and should focus on helping employees to use the internet resources properly, improving collaboration and problem-solving skills, improving employees' ability to use technology and digital tools by facilitating the transfer of knowledge, and improving critical thinking skills by facilitating in-person and online discussions. Nevertheless, employees should be motivated to develop new skills based on context and inspired to improve their skills through different incentives

(Meyers, et al., 2013). Moreover, Meyers et al. (2013) argue that an employee's IL skills should be carefully evaluated to determine each specific area that requires attention and development. Additionally, organizations should consider context when developing IL training and providing support to employees and should also create a learning environment to ensure the transfer of knowledge and skills between employees. Regardless, organizations should always have an information professional involved in the design of the IL development and training programs to ensure their success. (Hobbs, 2010; Meyers, et al., 2013)

An organization only benefits from promoting the development of IL skills in the workplace. By doing so, organizations are helping employees to become independent thinkers, to generate reliable material, to develop critical thinking skills, to work as a team, to be more creative and to have a more ethical understanding of the use and distribution of information (Hobbs, 2010). Regardless, Fieldhouse and Nichol (2008) argue that unfortunately, nobody seems to precisely know who should be responsible for the development and training of IL in the workplace.

Boothby et al. (2010) argue that it is worth investing in the development of training programs to develop and support the ability of employees to use technology, as it facilitates the development of IL skills and the adoption of new technology in the workplace. Nevertheless, organizations must be careful not to focus extensively on helping employees to develop their IT skills; this should be clear in the designing of an IL program. Organizations that focus extensively on the promotion of IT skills will not be able to improve their employees' ability to manage information in the digital environment (Hobbs, 2010) However, it seems that the development of technology and IT skills is the main priority in most organizations (SHRM, 2011).

Despite the importance of promoting the development of IL skills in the workplace, it seems that the development of IL skills among employees does not receive enough attention. This may derive from the fact that no one knows who is responsible for promoting IL skills. Nevertheless, organizations should carefully plan how to promote IL skills in the workplace, to ensure that employees fully develop the skills required for

managing information successfully. This is an area which has not been widely studied in the workplace (Lloyd, 2010), making it an interesting topic for further study.

7 Methodology

7.1 Research methodology

As previously stated in the beginning, the study aims to investigate how IL is perceived by employees and how the development of IL skills is being promoted in the digital workplace. Thus, the study focused on the two following questions: (1) How do employees in the digital workplace perceive IL skills? (2) How is the development of IL skills being promoted in the digital workplace?

In this study, either a qualitative or a quantitative research approach would give insights into the employees' perception and the promotion of IL skills in the digital workplace. A qualitative research approach is adopted when a researcher wants to create descriptive data of a study sample. In this case, a researcher collects data by interacting, carefully listening and observing the behavior of the sample inside an environment (Taylor, et al., 2015). Moreover, a researcher may use several methods and techniques during a semi-structured or open-ended interview to obtain data (Choy, 2014). The method enables a researcher to build understanding directly instead of indirectly. Additionally, it allows the examination of specific cultural aspects, allowing a better understanding of an individual's behaviors and actions, and an investigation of point of views and perceptions. (Duck & McMahan, 2013, p. 35; Choy, 2014) However, it does not allow the generalization of findings (Carr, 1994). Regardless, a qualitative approach can be time-consuming, and sometimes critical information can be missed or go unnoticed during an interview. Furthermore, problems may occur when collecting data from the studied sample using a qualitative approach, for instance, control of data is often limited, and observations can be problematic, because understanding is restricted to the knowledge and experience of the researcher studying the sample. (Duck & McMahan, 2013, p. 35; Choy, 2014) Moreover, (Lancaster, 2004) argues that participants in a study may not share essential information while having their voices recorded, and then adds that it is difficult to analyze data collected during an interview. Additionally, Lochrie et al. (2015) argue that a researcher should always consider how to gain access to data, as it may be difficult to have full access to the data needed for a study.

At first, the plan was to use semi-structured or open-ended interviews to obtain the data required for this study, however gaining access to companies was difficult, therefore a quantitative method was chosen instead of the qualitative approach.

In contrast to a qualitative approach, which is based on an individual interpretation of social context (Burgess, 2001, p. 233; Choy, 2014), a quantitative approach will be founded on positivism, thus allowing a researcher to control external influences to reduce data and information biases (Muijs, 2004; Gerrish & Lacey, 2010). A researcher uses a quantitative approach when the intention is to collect numerical data to create statistical information to test a hypothesis or theory, and to investigate demographic changes, to explain a phenomenon, or to identify influential factors (Muijs, 2004; Gerrish & Lacey, 2010). The results of a quantitative study are used for predicting the future, describing trends and for explaining the relationship between variables (Gerrish & Lacey, 2010). Here, a researcher randomly selects the study samples from a large population to obtain the data to analyze. Moreover, unlike the qualitative, a quantitative approach allows a researcher to generalize the findings of a study, but it does not allow for the generalization of conclusions formed from a small size sample study (Carr, 1994). According to Choy (2014), a researcher builds understanding through the indirect collection of data from members of a large population. Moreover, Choy (2014) argues that a quantitative approach allows for a faster evaluation, manipulation, comparison, differentiation of numerical data of numerical data, it guarantees data reliability, and it does not require much time to pre-organizing as it would be in a qualitative study. Choy (2014) argues however that important cultural and contextual aspects are left untouched while collecting data using a quantitative approach, therefore it may prevent a researcher from gaining a proper understanding of behaviors and attitudes of the study sample. For that reason, a quantitative research method is better used for testing theories and hypotheses and for gaining a broader view of different aspects and contexts (Muijs, 2004).

According to Lancaster (2004) surveys are recognized widely as a reliable tool for collecting data in a short time and are adopted by researchers in various fields of study. Moreover, Crowther & Lancaster (2012, pp. 161-164) argue that a survey is an efficient method for reaching and collecting data from a large population at once, especially when research resources are limited. According to Taheri et al. (2015), a well-structured survey

will allow a researcher to ask questions without changing its order. Additionally, a survey questionnaire is useful when investigating all sorts of events inside or outside of an organization, and for collecting data on opinions about working conditions and procedures (Crowther & Lancaster, 2012, pp. 161-164; Taheri, et al., 2015).

In contrast to interviews conducted in person, a researcher may have easier access to sample studies when using a survey, because a researcher can distribute it to a small number of potential respondents who may subsequently share it with other people in their networks. Additionally, another advantage is the possibility to add open questions to a survey which enables the collection of more descriptive data. Regardless, it is important to note that some factors may affect the reliability of data, such as bias and omission of true reality while and individual answers the survey questions. (Taheri, et al., 2015)

As previously stated, a qualitative approach was thought to be the most appropriate for this study, as it allows for better understanding of beliefs, behaviors, and perceptions (Duck & McMahan, 2013, p. 35; Choy, 2014). However, as an employee understanding of IL differs from one context to the other (Bruce, 1999; Lloyd, 2010), it would be challenging, costly and time-consuming to interview employees from various organizations. Nevertheless, a survey approach also allows for the collection of data of different beliefs, behaviors, and perceptions and events, though it is more affordable, adaptable, and it can reach a large group of individuals in short time (Crowther & Lancaster, 2012, pp. 161-164; Taheri, et al., 2015). Therefore, a quantitative approach and a use of the survey questionnaire was the most appropriate choice for collecting data for this study.

7.2   Material and data collection

The survey was intended for employees whose job requires daily use of information for decision making and problems solving and digital tools for facilitating the information management in the workplace (Wilson & Tunney, 2016). Regardless, Bruce (1999) argues that the form in which employees use information depends on their contextual knowledge of the workplace. Additionally, context varies widely between organizations (Goad, 2002), and influences how employees understand IL (Lloyd, 2010). For that

reason, having the survey distributed across a wide range of work environments was a good strategy for accessing different views, and gaining an understanding on how employees perceive IL and how organization promotes the development of IL in the digital workplace. The survey was composed of a series of multiple choice questions which were structured based on the Likert scale ranging from one strongly agreed to seven strongly disagreed (Weinberg & Abramowitz, 2002), and some open questions. The questions were developed with the help of an information management expert and based on the IL definitions found during the literature review. Please see Chapter 3, SCONUL Table 1 and Chapter 5. The questions were pilot-test several times to ensure accuracy, simplicity, and clarity, and it was modified based on the feedback received, and then it was revised, checked and approved by the thesis supervisor before being published on Facebook, LinkedIn and Twitter from April 10 to May 1, 2017. A screening question has been used at the start of the survey to avoid sampling bias, and a snowball sampling technique was used for selecting the study sample (Taheri, et al., 2015, p. 162). Additionally, in the process of collecting the data, a non-probability or nonrandom sampling mostly known, as convenience sampling was also used to acquire some of the data (Farrokhi, 2012, p. 782).

7.3   Research limitations

Limitations are inevitable when collecting data for a study, and there were no exceptions in this study. The initial idea was to gather the data through a set of face-to-face interviews, thus adopting a qualitative instead of a quantitative research approach. A qualitative research approach would have allowed for a better collection of in-depth data on the respondents' perceptions and type of support available in different workplaces. However, as mentioned earlier in the methodology chapter, it is sometimes difficult to gain access to companies because of many uncontrollable variables. Consequently, the survey approach was undeniably the most efficient alternative to acquiring the data needed for this study. Nevertheless, there were also additional challenges during the data collection that led to the adoption of other forms of data collection. Some other problems were caused by the length of the survey and by the lack of enough resources to conduct the study.

8 Data analysis and findings

SPSS is a statistical package software developed by IBM with the purpose of facilitating the process of data analysis. Widely used in social science studies, the software helps to create descriptive data from a target population and produce inferential statistics used in the formulation of predictions and generation of assumptions. (Grotenhuis & Matthijssen, 2015) However, in this study, the software was mainly used for analyzing the data with basic descriptive statistics despite all of its advantages. The reason for taking this direction derives from the fact that the available data does not qualify for most of the advanced statistical methods. Nevertheless, using advanced approaches in the examination of the data collected would cause the analysis to underperform and to deliver unstable results from the small sample size. Additionally, any attempt to create a hypothesis would not be reliable because of the few responses acquired from the survey.

Table 2 Sample Background

Variable	Category	% of respondents
Age	20-29	50.8
	30-39	34.9
	40-49	4.7
	50-59	7.8
	60 & above	1.6
Gender	Male	30
	Female	70
Education	School	14
	College	52
	University	34
Continent	Africa	2
	Asia	14
	Europe	70
	North America	4
	South America	10

Table 3 Functions

Variable	Groups	% of respondents
Functions	Business	68
	Education	16
	Engineering	6
	Information Technology	4
	Healthcare	4
	Law	2

The study population consists of 63 respondents, whose tasks require the ability to search, evaluate, organize, distribute, and create information using digital tools in the workplace. The highest number of the respondents 70% are females and 30% were males. Most of the respondents' ages ranged between 20-29 years old: 35% range between 30 and 39, 8% range between 40 and 49, 5% range between 50 and 59, and 2% range between 50 and 59 years old. Nationality varies among the respondents. Nevertheless, most of the responses 70 % came from Europe, 14% from Asia, 10% from South America, 4% from North America, and 2% from Africa. Education level also varies; most of the respondents 52% claim to have a college degree, 34% claim a University degree, and 14% claim a high school diploma. Functions also differ among the respondents, as most of them 68% held a type administrative positions in some commercial organization: 16% in the field of education, 6% in engineering, 4% in information technology, 4% in healthcare, and 2% in law enforcement. Regardless, only 50 out of 63 responses are analyzed in this study, as 13 were returned incomplete.

8.1   Results and analysis

This part presents the data analysis and results, however, some of the collected data have not been analyzed because of several uncontrollable factors.

Searching for digital information
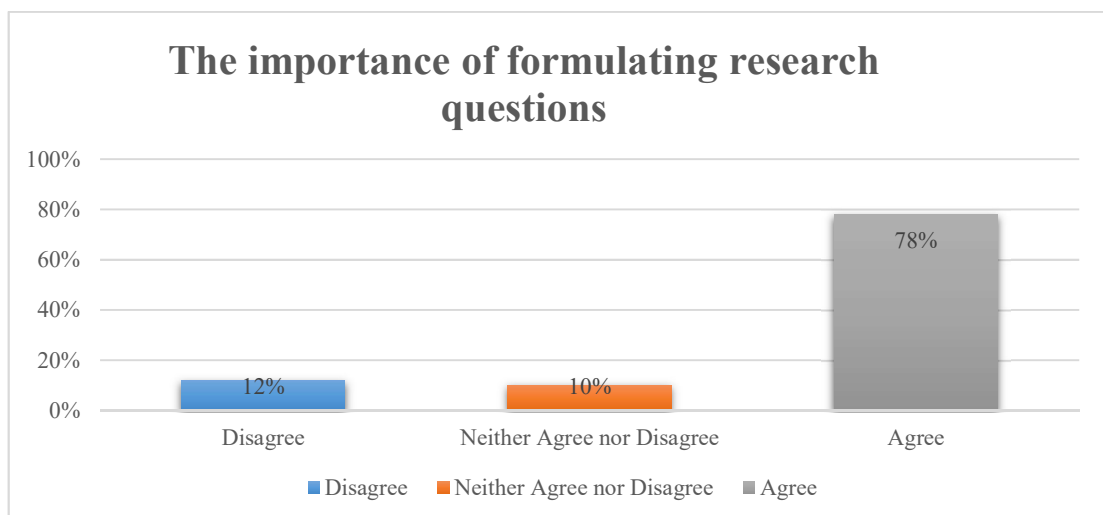
Figure 1 The importance of formulating research questions

The respondents were requested to share their opinion on the importance of formulating research questions before initiating the information search. (Section 3, Question 8- sq2) Most of the respondents, 78% agreed that it is important to formulate questions before searching for information, 12 % of the respondents disagreed, and 10% were unsure. Thus, the result in Figure 1 indicates that the respondents recognize the importance of formulating questions before initiating their information searches.

Developing information search strategies

20 %

16 %

64 %

- Disagree
- Neither Agree nor Disagree
- Agree
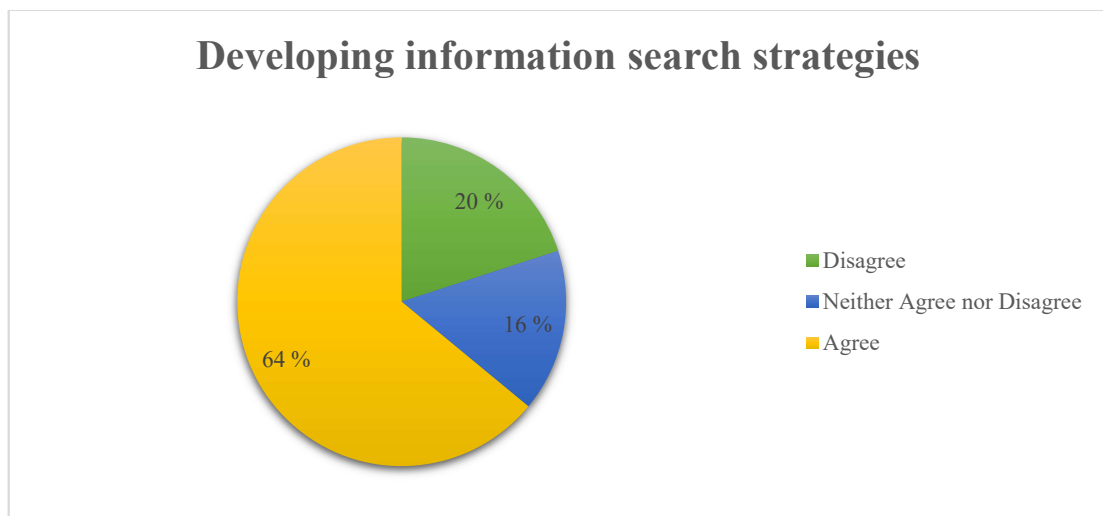
Figure 2 Developing information search strategies

The respondents were asked if they usually have a search plan in mind before initiating their online information search. (Section 3, Questions 8-sq8) A little more than half of the respondents 64% indicate that they have a search plan in mind before starting to look for information; 20% did not have a search plan in mind, and 16% were neutral. The results in Figure 2 indicate that the respondents may have different information search behaviors. Thus, some of the respondents may carefully plan how to search for information, and others may randomly search for information online while using a variety of digital tools. The results also indicate that a small portion of the respondents may not know how their search behavior affects their performance at work.

The time spent for searching information on the Internet
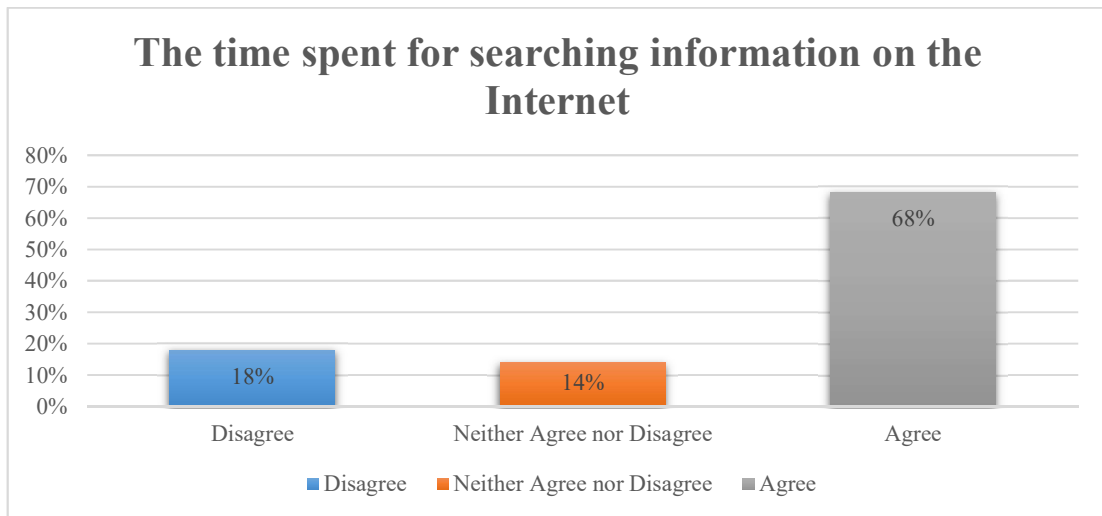
Figure 3 The time spent for searching information on the Internet

Moreover, the respondents were asked if they spend long hours searching for information on the Internet. (Section 3, Question 8-sb7) A little over half, 68% of the respondents have agreed that they spend long hours searching for information on the Internet, 18% disagreed, and 14 % were uncertain. The result in Figure 3 indicates that the time spent in searching for information on the Internet vary among the respondents, this could be because of the type of information required for performing a variety of tasks at work, or the result could be from a lack of information regarding search strategy. Moreover, the result gives the impression that while searching for information on the internet the respondents may waste valuable work time. Therefore, the respondents may not search for information effectively in the digital workplace.

Digital information sources

In this part, the study tries to reveal what sources employees use most frequently and what they perceive as a reliable and accurate information source in the digital workplace.

The respondents were asked to indicate three of the most used sources of information while performing their tasks at work. (Section 3, Question 9) The results show that the most used sources in the digital workplace are web-sites, colleagues, reports, academic journal article, and the Intranet. The least used information sources are blogs, magazines, the library, and online network and YouTube videos. The results indicate that most information utilized by the respondents may be obtained through the Internet and their internal professional network, both of which are reliable sources of information, but may not be the most accurate sources available inside an organization.

Digital sources of information accuracy and reliability

Additionally, the respondents were requested to indicate three information sources that they perceived as reliable sources in providing accurate information. (Section 3, Question 10) The responses here are different in comparison to the previous question (Section 3, Question 9). Here, the results indicate that employees see academic journal articles, books, and internal reports as the most reliable and accurate sources of information available in the workplace. Moreover, the results show that some of the respondent can distinguish between reliable and unreliable sources. However, the respondent may not always choose a source of information based on what they perceive as appropriate sources; this may happen because of the pressure caused by the workload in the workplace. Therefore, the excessive pressure of workload may lead the respondents to act impulsively and use inappropriate information sources to answer their questions. On the other hand, web-sites, encyclopedia, colleagues, the Intranet, and blogs are indicated as the least reliable and accurate sources of information. Nevertheless, the information that colleagues provide can be useful and valid depending on the level of expertise of the colleagues and the situation of the employee. Even though the result indicates otherwise, colleague's expertise can be relevant and sometimes be unconsciously used in problem-solving and for decision-making in the workplace.

Accessing digital information

Next, the study investigates the importance of accessing and using search techniques to find information in the digital workplace.

Accessing information effectively
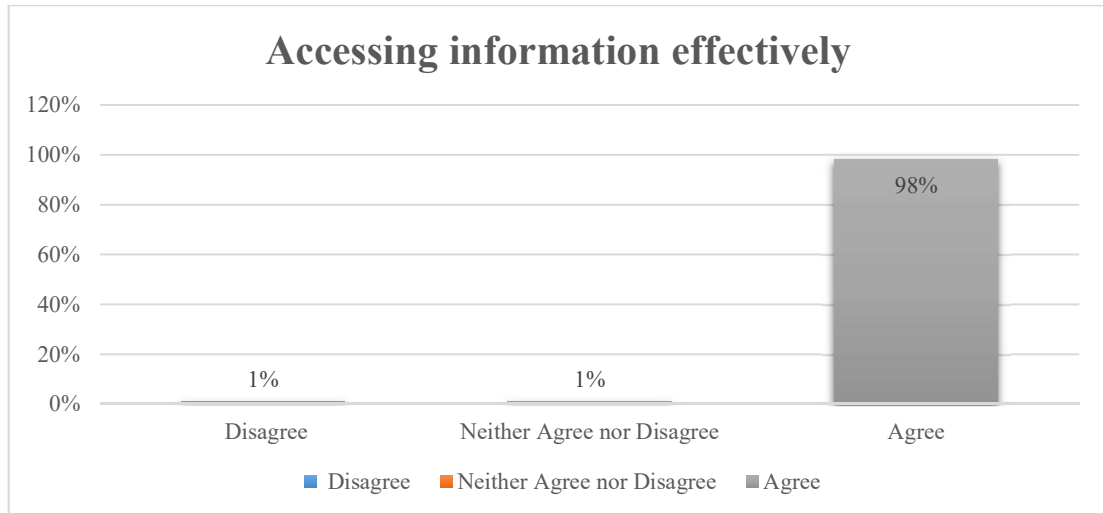
Figure 4 Accessing information effectively

The respondents were asked if it is crucial to access information efficiently while searching for information in the workplace. (Section 4, Question 11-sq5) Most of the respondents, 98% have agreed on the importance of accessing information efficiently in the workplace, 1% have disagreed, and another 1% were uncertain. The result in Figure 4 indicates that the respondents understand the importance of having quick access to information in the digital workplace. Additionally, the results also show that any barrier to information access could prevent an employee from accessing information successfully in the digital environment. For instance, lack of IL skills could create problems when searching for information across the workplace.

Using search techniques for finding information
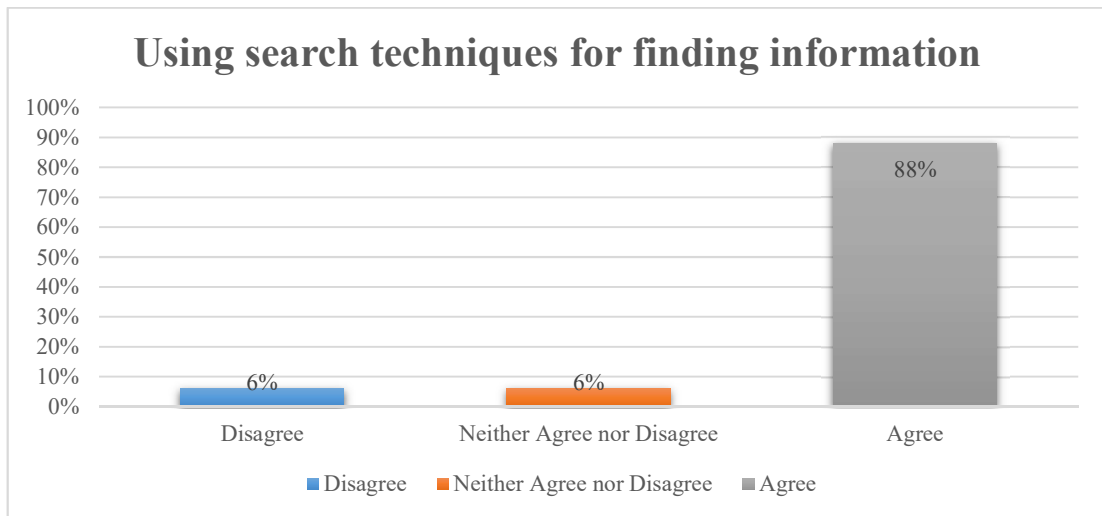
Figure 5 Using search techniques for finding information

Moreover, the respondents are asked about their ability to use search techniques when searching for information online. (Section 6, Question 14-sq1) Most of the respondents, 88% have agreed on the importance of knowing how to use various search techniques to find information successfully, 6% have disagreed, and 6% were unsure. Therefore, the results in Figure 5 indicate that the respondents are aware of the techniques used for finding online information efficiently. However, the results show that some differences exist on the level of awareness of search techniques among the respondents; hence, barriers to information access may increase because of the lack of proper research skills.

Randomly searching for information on search engines
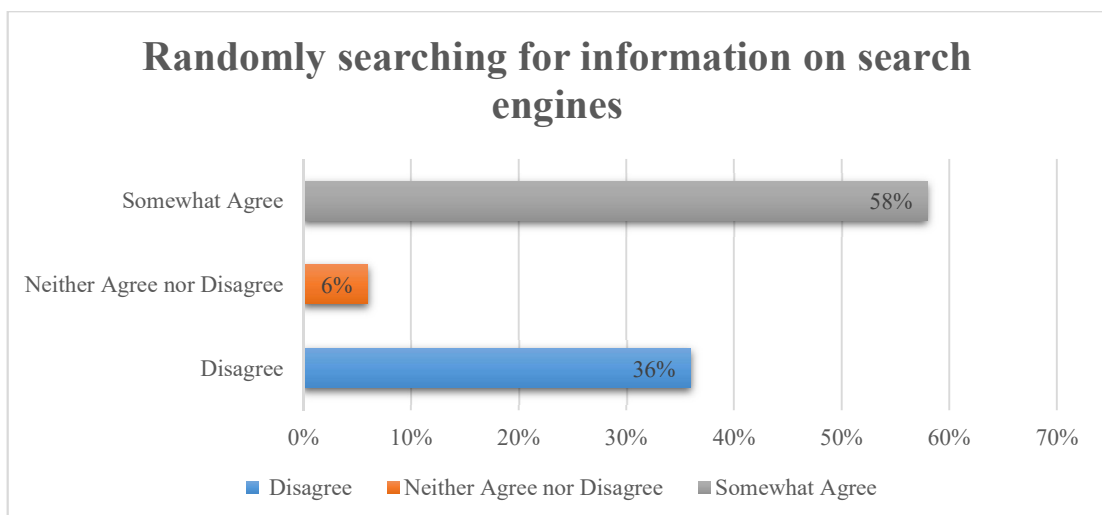
Figure 6 Randomly searching for information on search engines

Furthermore, the respondents were asked about their search behavior when searching for information at work. (Section 6, Question 14-sq7) Despite recognizing the importance of

search skills, it seems that these skills are not always applied to searching engines for finding information online. A little over than half of the respondents, 58% have agreed that it is common to search randomly for data using search engines, while 36% disagreed, and 6% were unsure. The result in Figure 6 indicates that the respondents may not use or just may not know how to use information search techniques effectively to find information on the Internet. The inability to use search techniques effectively can create challenges when information is needed quickly to perform a task. Moreover, the situation worsens because of the availability of both unreliable and reliable information found while using a search engine to find information on the Internet. Because information availability continues to expand, and many people lack search skills, employees will need more time for searching, analyzing and evaluating information in the digital workplace.

Critically evaluating digital information

The previous part presented how the employees searched for information in the digital workplace. Therefore, this part investigates how they analyze and evaluate digital information.
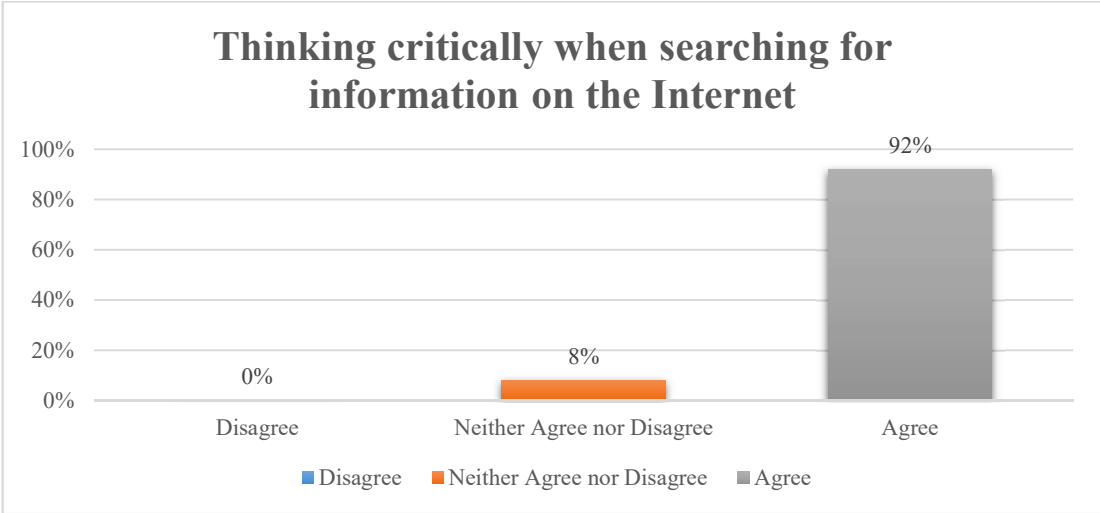
Figure 7 Thinking critically when searching for information on the Internet

It has never been this easy to find information when needed, however not all information found on the Internet is reliable, current and accurate. Therefore, a person need to have critical thinking skills to assess the digital information that is published online and used in the workplace.

It has never been this easy to find information; however not all information found on the Internet is reliable, current and accurate. Therefore, an employee needs to possess critical thinking skills to assess the digital material published on the Internet.

Therefore, the respondents were asked if it is important to use critical thinking skills when analyzing and evaluating digital information. (Section 7, Question 16-sq1) Here, most of the respondents, 92% agreed that the use of critical thinking is essential when analyzing and evaluating information obtained from the Internet, and 8% were unsure. The result in Figure 7 indicates that the respondents recognize the importance of assessing digital material critically before using and sharing across the workplace.
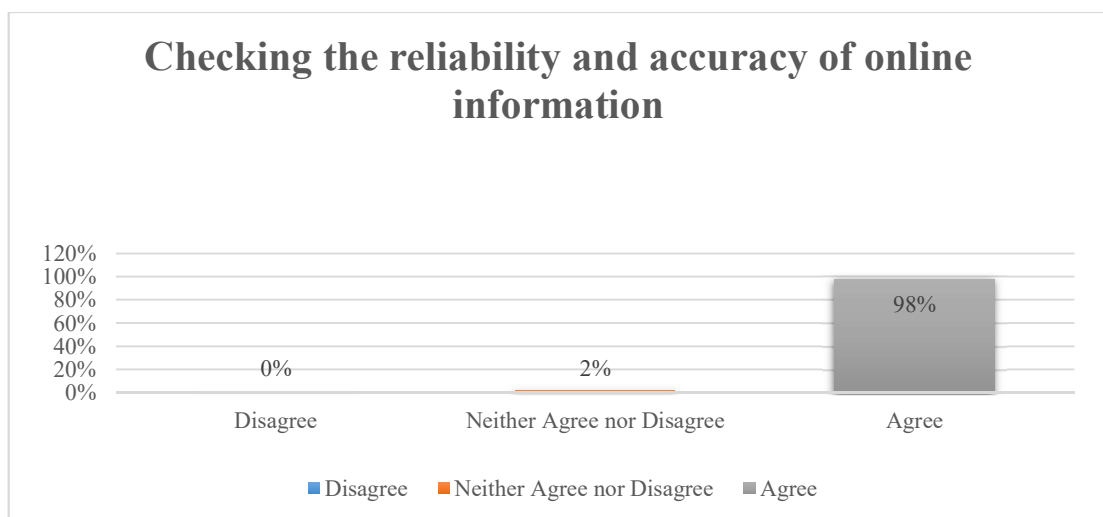
Figure 8 Checking the reliability and accuracy of online information

Here, the intention is to investigate whether the respondents assess the quality of the digital material used at work. Thus, they were asked if they consider the reliability and accuracy of the information that they obtain from the Internet. (Section 6, Question 16-5) Most of the respondents, 98% indicated that they evaluate the quality of information, and only 2% were unsure. The results in Figure 8 show that the respondents may carefully assess the content of the digital material they obtain from the Internet to ensure that it is suitable for use at work.
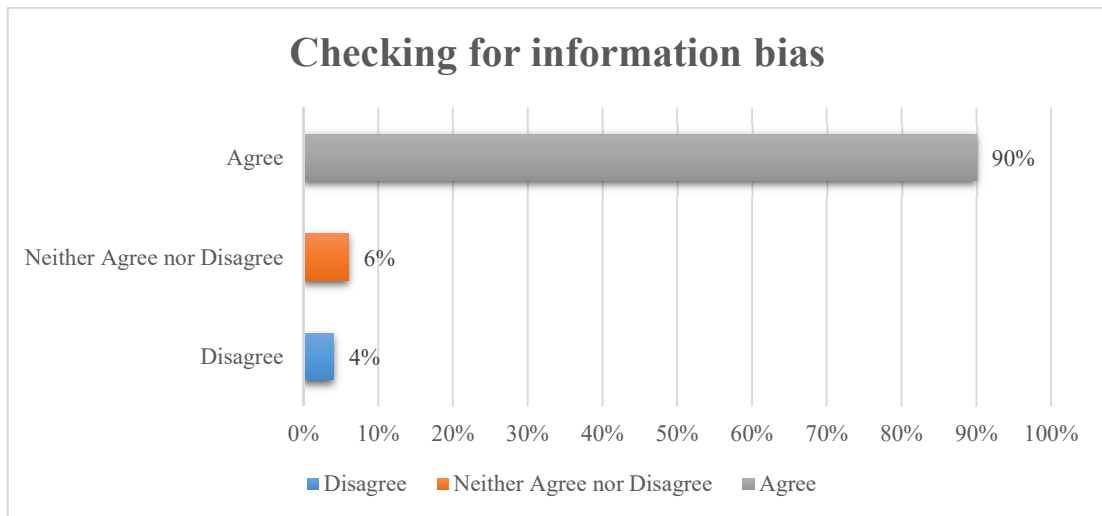
Figure 9 Checking for information bias

Furthermore, the respondents were asked if it is important to critically analyze the purpose, meaning, and logic behind the digital information obtained from the Internet. (Section 7, Question 17-sq1) Most of the respondents, 90% agreed on the importance of examining digital material critically to ensure that it is bias-free, 4% disagreed, and 6% were unsure. Based on the result in Figure 9, it seems that digital information is carefully analyzed and evaluated by the respondents. This indicates that the respondents may have enough analytical and critical thinking skills to judge the purpose, meaning, and logic behind the information they find on the Internet. However, the result also indicates that some of the respondents may lack awareness, or the skills required for assessing digital material successfully.
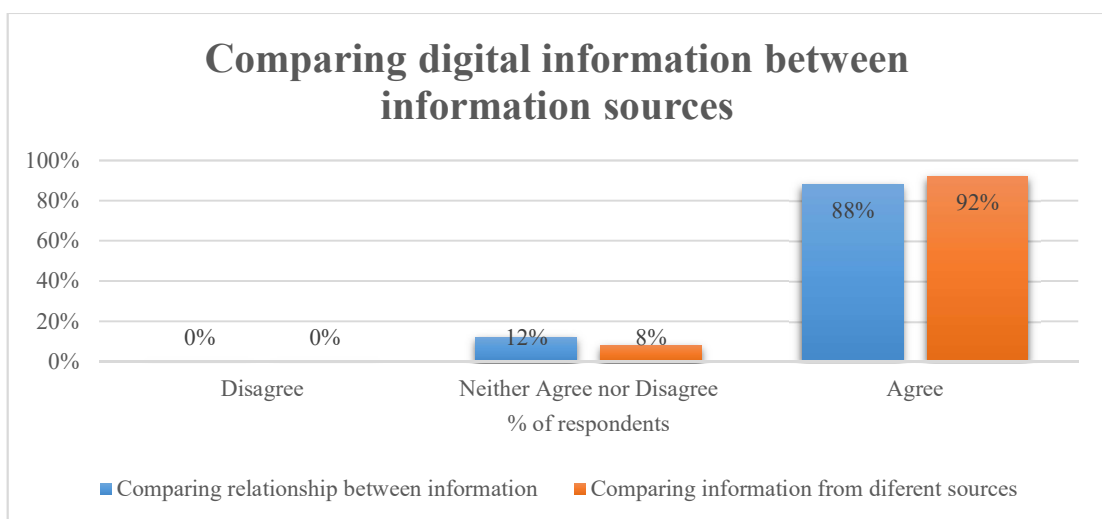
Figure 10 Comparing digital information between information sources

Next, the study investigates if the respondents compare different sources of information to find a relationship between their contents.

The respondents were asked if they compare the content of one source with other sources of information. (Section 6, Question 18-sq10 and Section 7, Question 17-sq2) Almost all the respondents, 88% have agreed on the importance of comparing different sources of information. Additionally, 92% of the respondents have agreed on the importance of examining diverse sources of information to find a relationship between their content. Both results in Figure 10 indicate that the respondents are likely to compare different sources of information to verify the veracity of the available content, but this may not always happen in the digital workplace.
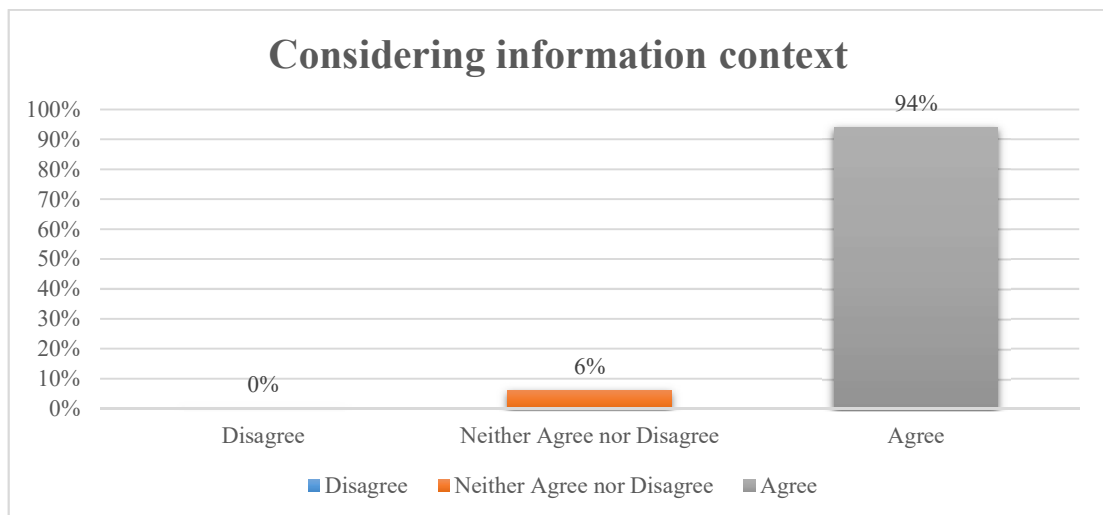
Figure 11 Considering information context

The study then considers the importance of information context in the digital workplace. Thus, the respondents were asked if they consider the context of information when analyzing and evaluating digital material. (Section 7, Question 17-sq3) Most of the respondents, 94% recognize the importance of information context awareness when assessing online information, and 6% were unsure. The results in Figure 11 indicate that the respondents may be aware of the impact of context on online information, and how this affects understanding. The results also show that in the digital workplace the importance of information context is well recognized.
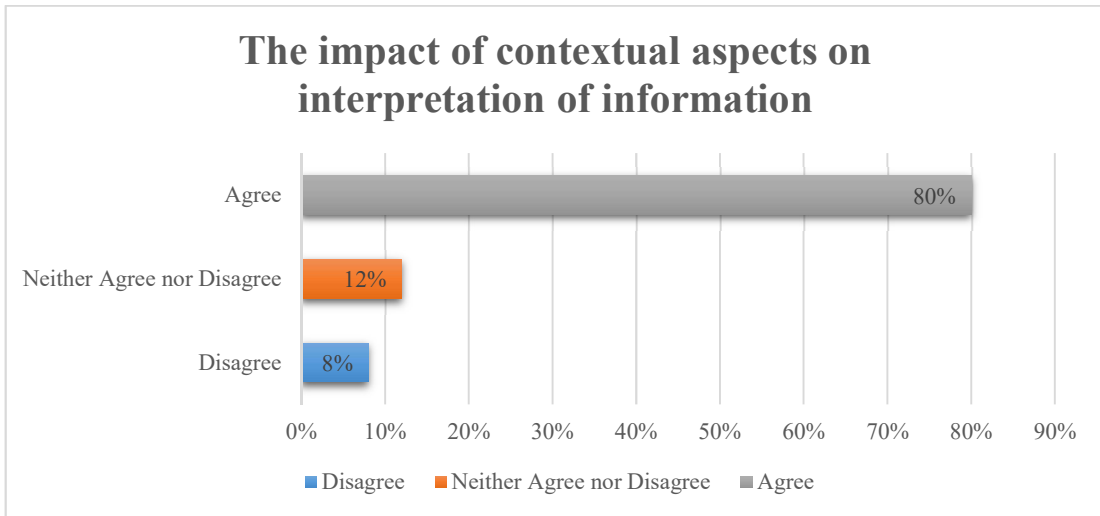
Figure 12 The impact of contextual aspects on interpretation of information

Moreover, the respondents were requested to provide their opinion on the impact of contextual aspects, such as culture, history, and values, among others on information interpretation. (Section 7, Question 16-sq4) Most of the respondents, 80% agreed that a set of different factors may influence interpretation, this includes culture, history, values, and time, among others, 8% disagreed, and 12 % were unsure. The results in Figure (12) indicate that there is a higher level of awareness among the respondents regarding the influence of contextual aspects of the process of sense-making. However, it seems that not all the respondents understand how context affects sense-making. Therefore, this indicates that the respondents may not equally understand the impact of contextual aspects in the interpretation of information.
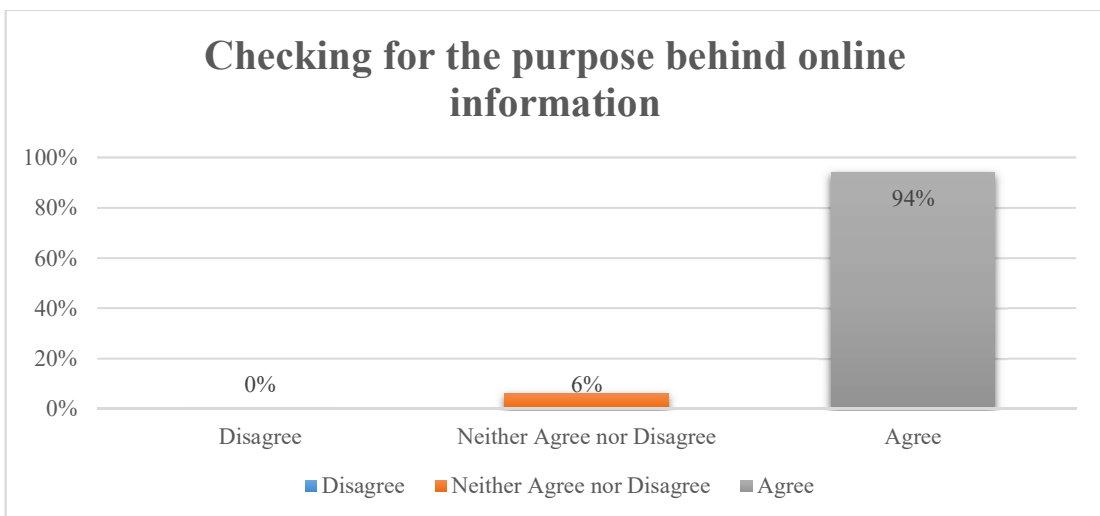
Figure 13 Checking for the purpose behind online information

Next, the respondents were asked if it is important to assess the purpose of the information they gather from the Internet. (Section 7, Question 18-sq1) Nearly all the respondents, 94% agreed on the importance of assessing the purpose behind online information, and 6% were uncertain. The results in Figure 13 show that the respondents recognize the importance of evaluating online information for developing a better understanding of the purpose and reasons behind it. Therefore, this indicates that the respondents may be fully aware of the importance of being able to evaluate information to develop their understanding and opinions.
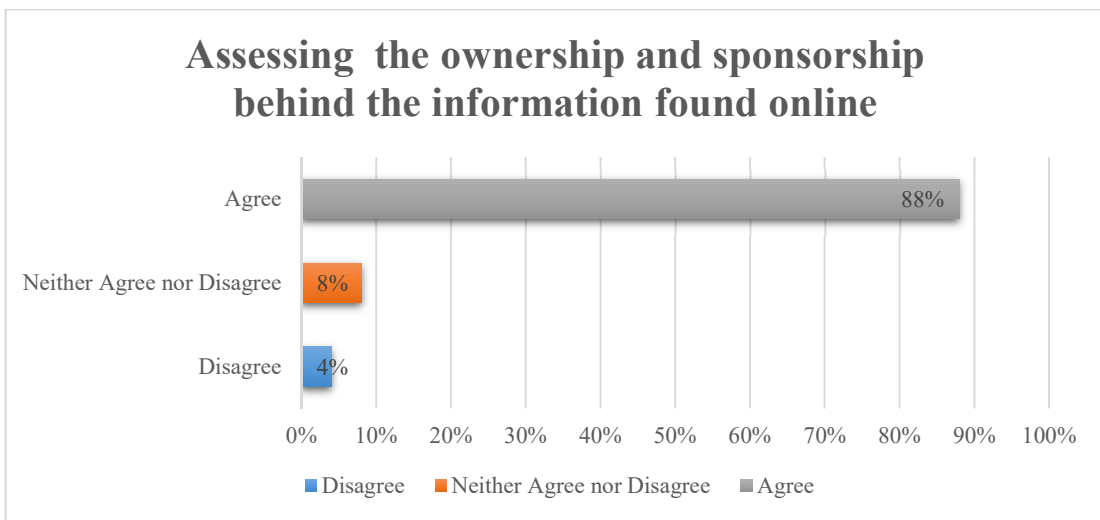
Figure 14 Assessing the ownership and sponsorship behind the information found online

The study continues with the importance of assessing ownership and sponsorship of the digital material published on the Internet.

The respondents were asked if it is important to assess the background of the person or the organization owning or sponsoring the digital information published on the Internet. (Section 7, question 18-sq2) About 88% of the respondents agreed on the importance of considering the ownership and sponsorship of the digital material when evaluating it, 4% disagreed, and 8% were uncertain. The result in Figure (14) shows that the respondents may often assess the ownership and sponsorship of published digital information to ensure that it is reliable before using it at work, but there could be times when this may not occur in the digital workplace.
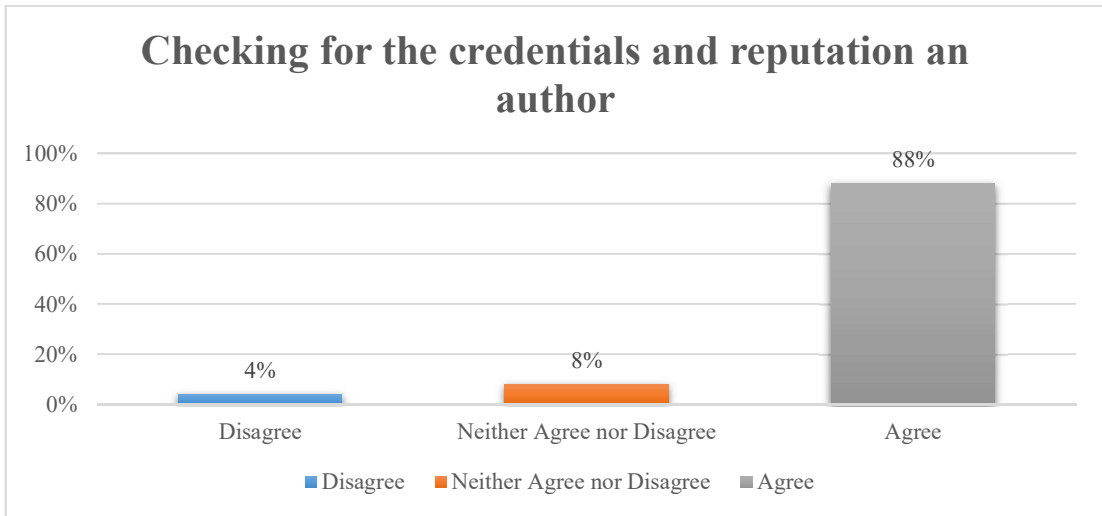
Figure 15 Checking for the credentials and reputation an author

Next, the respondents were asked if it is important to check for the credibility of the author when evaluating the digital information. (Section 7, Question 18-sq3) Most of the respondents, 88% agreed on the importance of considering an author's credibility when evaluating information, 4% disagreed, and 8% were unsure. The results in Figure 15 indicate that the respondents understand the importance of assessing the reputation of a person who produces and publishes information on the Internet. Additionally, the results show that the respondents may be aware of the impact that the author's reputation has on the validity and reliability of digital material.
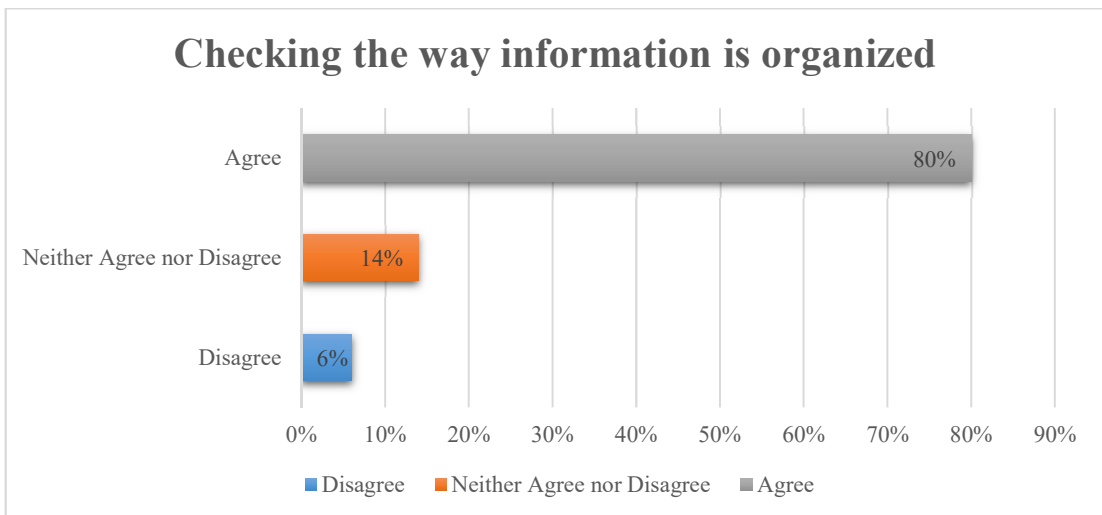
Figure 16 Checking the way information is organized

Additionally, the respondents were asked if it is important to examine how the content of the digital material is organized. (Section 7, Question 18-sq4) About 80% of the

respondents agreed on the importance of checking the way in which information is organized and structured, 6% disagreed and 14% were uncertain. The result in Figure 16 suggests that the respondents recognize the importance of checking how content is organized and structured on the material they gather from the Internet, but it seems that some of the respondents may not give enough attention to examining the order in which content is display.
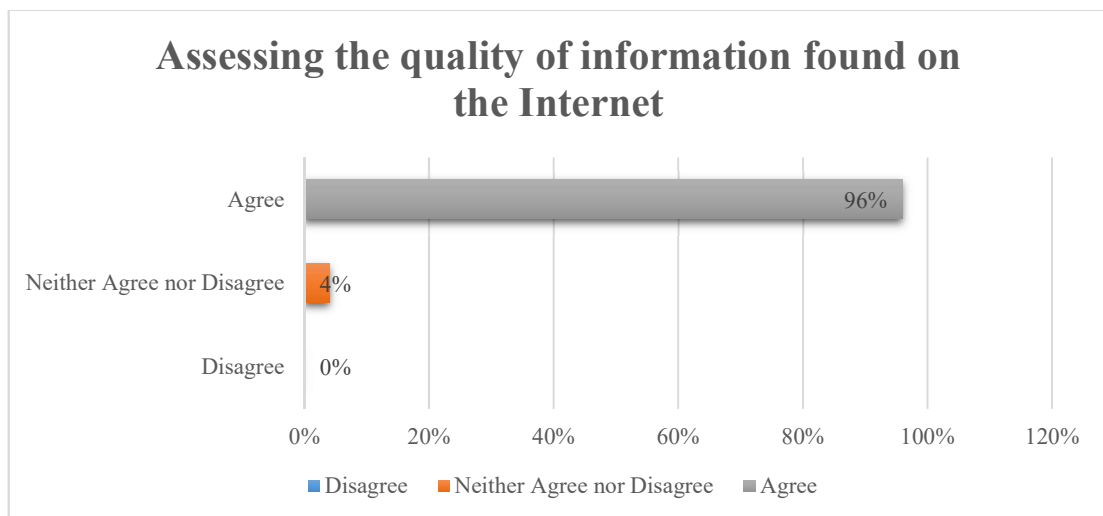
Figure 17 Assessing the quality of information found on the Internet

Furthermore, the respondents were asked if it is important to assess the validity of the information found on the Internet. (Section 7, Question 18-sq5) Nearly all the respondents, 96% agreed on the importance of verifying if the information found on the Internet is genuine and 4% were uncertain. The result in Figure (17) indicates that the respondents carefully assess digital material from the Internet to ensure that it is valid and accurate, but some respondents may not always check the validity of the information they obtain from the Internet.
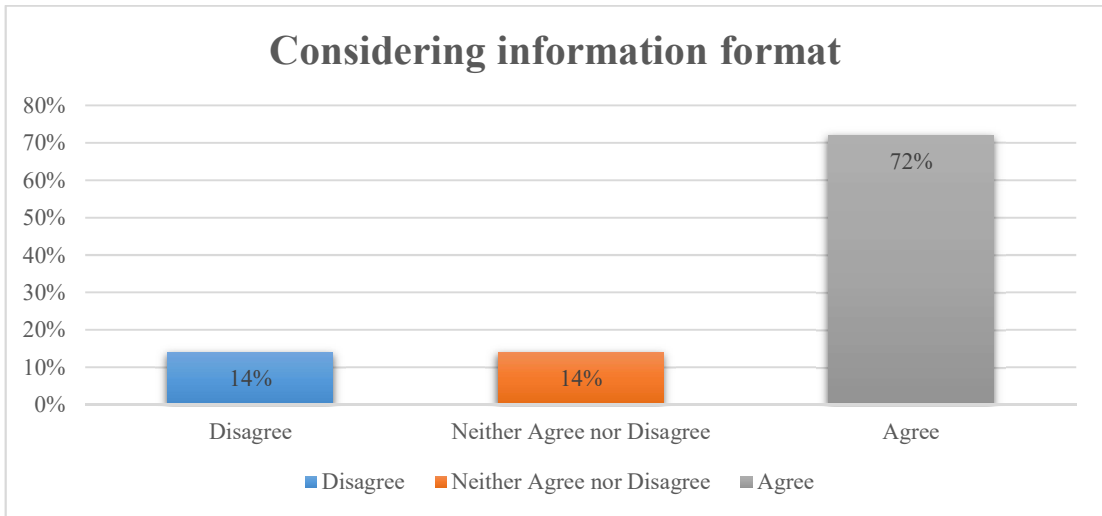
Figure 18 Considering information format

Then, the respondents were asked if it is important to consider the information format when evaluating it. (Section 7, Question 18-sq6) Most of the respondents, 72% agreed on the importance of considering data format, 14% disagreed, and 14% were uncertain. The results in Figure 18 indicate that the respondents recognize the importance of assessing the format of data. However, the results also show that some of the respondents may not always look the format in which of data is present and may not consider the process of data conversion and transmission. However, the respondents should be careful when converting data to different formats, as relevant data loss can occur in the conversion process.
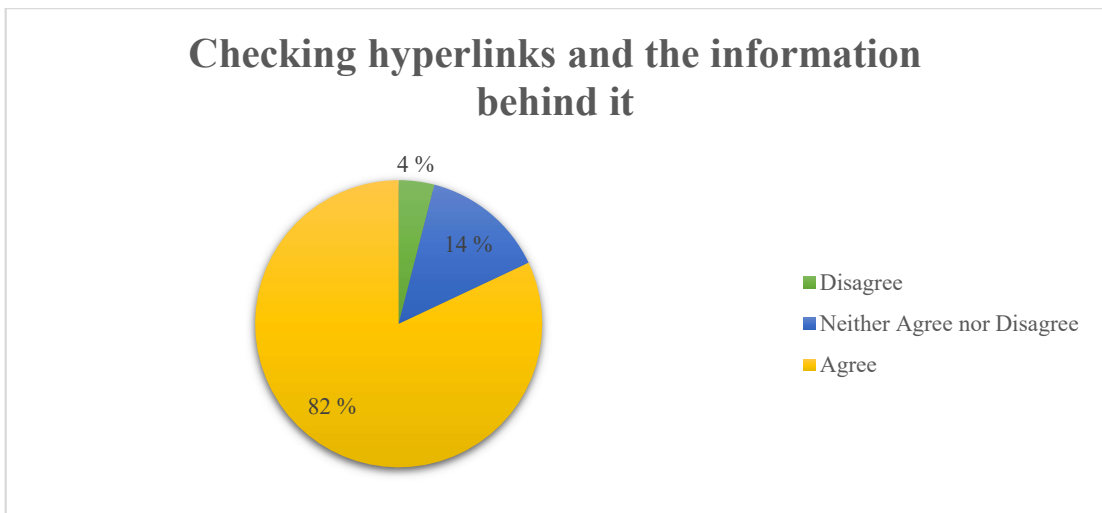
Figure 19 Checking hyperlinks and the information behind it

Furthermore, hyperlinks are often used on websites, documents and images to connect different sources of information related or closely related to a topic. However, sometimes these hyperlinks do not work correctly, which can make the content available unreliable. Therefore, employees should always check if a hyperlink works correctly because a hyperlink malfunction indicates that the source and its content may not receive proper maintenance, and the content available could be inaccurate and unreliable. Therefore, the respondents were asked if it is important to assess the functionality, and the information behind the hyperlinks inserted into websites, documents, and images. (Section 7, Question 18-sq7) Most of the respondents, 82 % agreed on the importance of checking if hyperlinks inserted in digital material works correctly and if the content is reliable and accurate, 4% disagree, and 14% were unsure. The results in Figure 19 indicates that the respondents understand the importance of assessing the functionality of a hyperlink and the information behind the resources connected by the hyperlinks to ensure the quality of information. However, it seems that not all the respondents look to see if the content from one source coincides with the content of other sources.
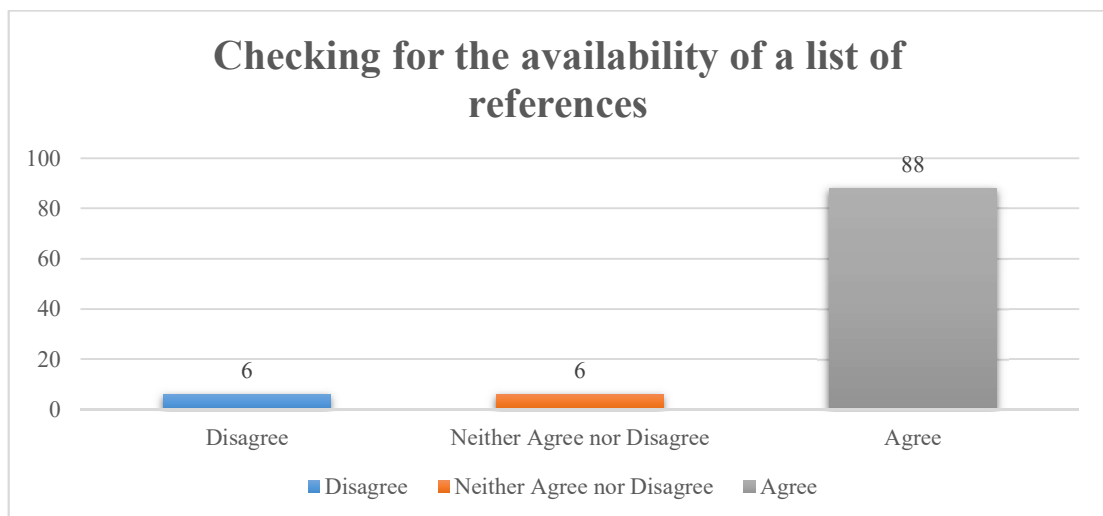
Figure 20 Checking for the availability of a list of references

Moreover, the respondents were asked if it is important to check if a list of reference exists for the information published on websites, documents, and images. (Section 7, Question18-sq8) Most of the respondents 88 % agreed on the importance of checking if a list of reference exists, 6% disagreed, and 6% were uncertain. The result in Figure 20 indicates that the respondents may be aware of the importance of providing a list of

references, but not all the respondents are fully aware. Regardless, a list of references is relevant, for instance, when an employee cannot understand the content available or when the employee wishes to trace and validate the information presented.
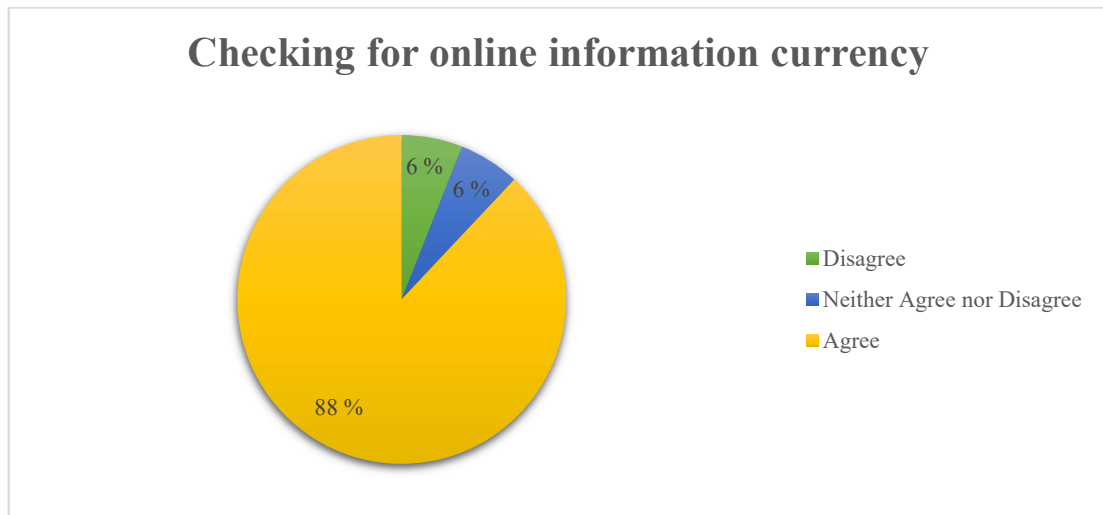
Checking for online information currency

Figure 21 Checking for online information currency

The need for current information will vary depending on the job. Some tasks will require the most current information available and others may require past as well as up-to-date information. Therefore, depending on the nature of the work, an employee must decide what type of information is needed. However, it can be difficult sometimes to determine the date of publication of digital material because that information is not always available. Therefore, in this case, an employee must carefully assess the accuracy, validity, and reliability of the published information before recognizing it as useful information for their assigned tasks. Therefore, the respondents were asked if it is important to check the currency of information obtained from the Internet. (Section 7, question 18 sq9) Almost all the respondents, 88% agreed on the importance of verifying that information used at work is up-to-date, 6% disagreed, and 6% were unsure. The result in Figure 21 indicates that the respondents recognize the importance of having current information, but apparently, some of the respondents do not share a similar understanding; this may be due to the differences in the level of education that exists among the respondents.

The importance of having information in the right format

0 % ———   ——— 1 %

99 %

■ Disagree   ■ Neither Agree nor Disagree   ■ Agree
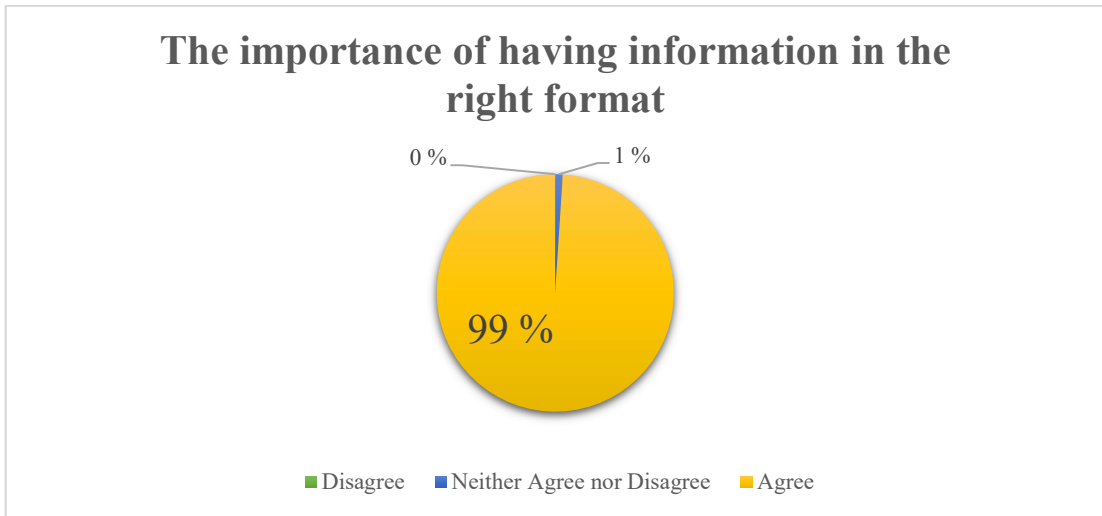
Figure 22 The importance of having information in the right format

Next, the respondents were asked if it is important to have information in the right format. (Section 10, Question 20-sq1) Nearly all the respondents, 99% agreed on the importance of having data in an understandable form, and 1% were unsure. The results in Figure 22 show that the respondents understand how data presented in a recognizable format can facilitate its use in the workplace.

Difficulties coping with different information formats in the workplace

32 %

8 %

60 %

■ Disagree
■ Neither Agree nor Disagree
■ Agree
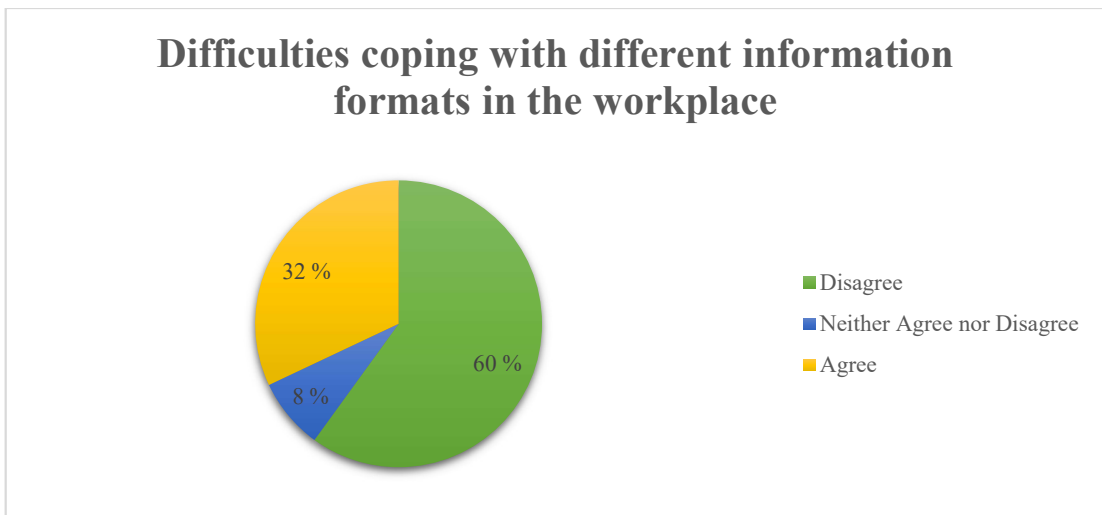
Figure 23 Difficulties coping with different information formats in the workplace

Moreover, the respondents were asked if the format of information causes problems when managing it at work. (Section 10, Question 20-sq2) Some of the respondents, 32% agreed on having problems with information format when managing it, 60% disagreed, and 8% were uncertain. The result in Figure 23 indicates that not all the respondents understand

the importance of having data in a comprehensive format for facilitating its discoverability, organization, and distribution in the workplace.
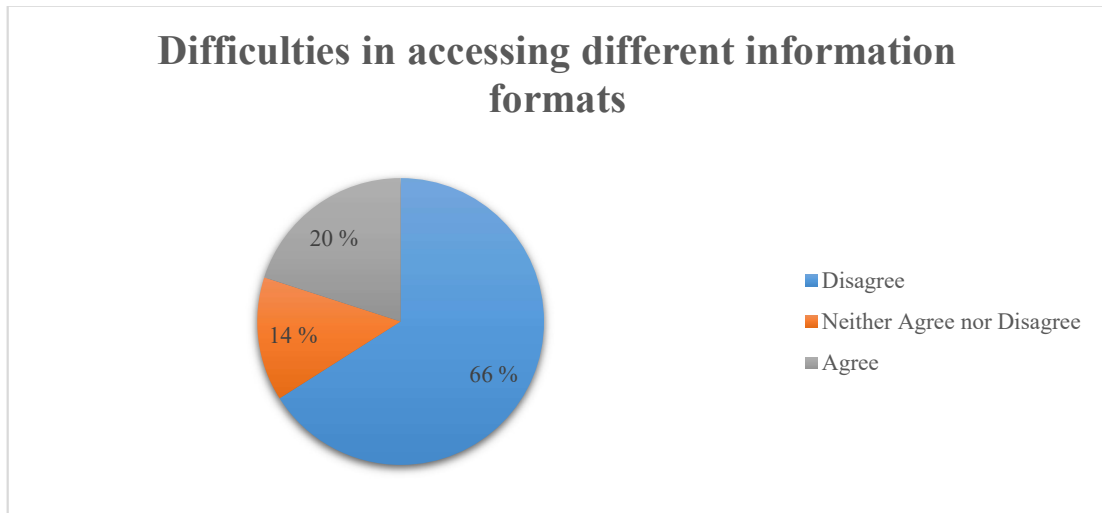
Figure 24 Difficulties in accessing different information formats

The respondents were asked if they had difficulty in accessing different types of information format at work. (Section 10, Question 20-sq3) Only a small percent of the respondents, 20% confirmed not having difficulties in accessing different types of data format, 66% disagreed, and 14% were uncertain. The results in Figure 24 indicate that most of the respondents may have difficulties in accessing information when it is not in a familiar format through digital devices.
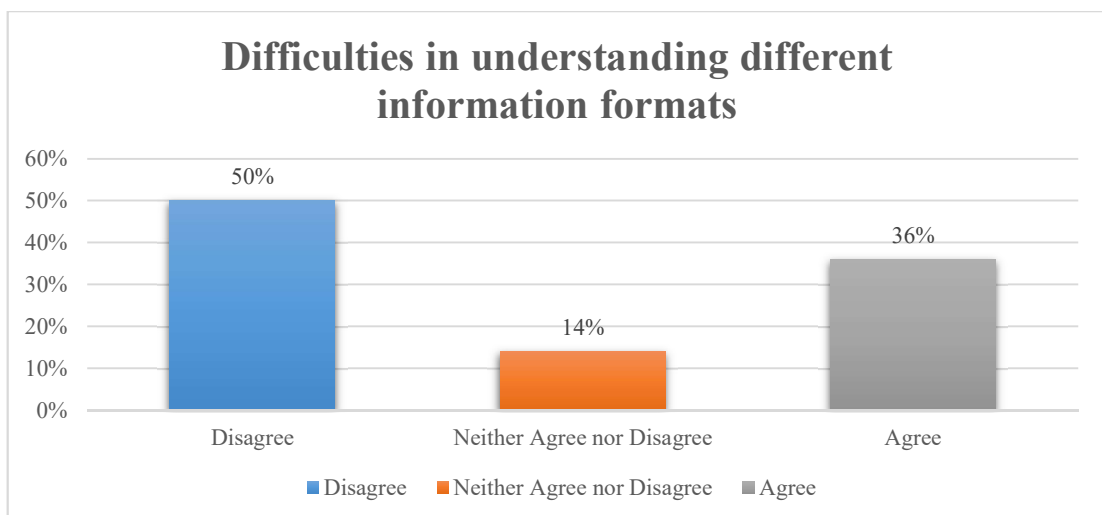
Figure 25 Difficulties in understanding different information formats

The respondents were asked if they have difficulty in understanding different types of information formats. (Section 10, Question 20-sq4) A small part of the respondents, 36% affirmed having difficulties in understanding different types of information formats at work, 50% disagreed, and 14% were uncertain. The result in Figure 25 indicates that some of the respondents may have problems in understanding different types of data and information formats, this may be because of the sort of tasks they perform at work, which could require the interpretation of complex forms of data formats. However, the result also indicates that not all the respondents have problems to understand, the result may be interpreted as the result of a difference in the level of digital literacy skills among the respondents.
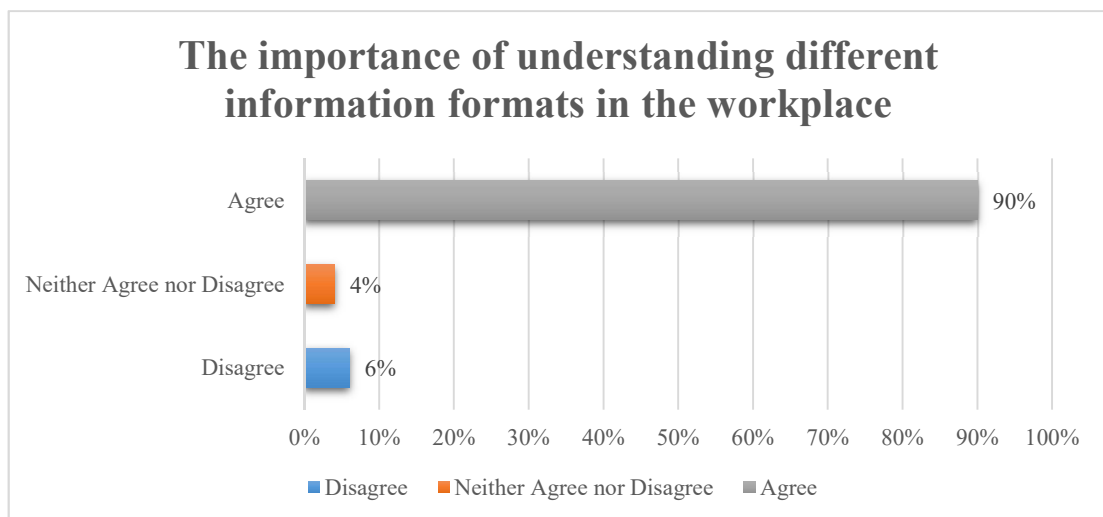
Figure 26 The importance of understanding different information formats in the workplace

Moreover, the respondents were asked if it is important for them to understand different information formats at work. (Section 10, Question 20-sq5) Most of the respondents, 90% agreed on the importance of being able to understand different types of information formats, 6% disagreed, and 4% were unsure. The result in Figure 26 indicates that the respondents recognize the importance of being able to understand different information formats for performing various tasks in the digital environment.

Organizing digital information

In this part, the study investigates how information is organized in the digital workplace.
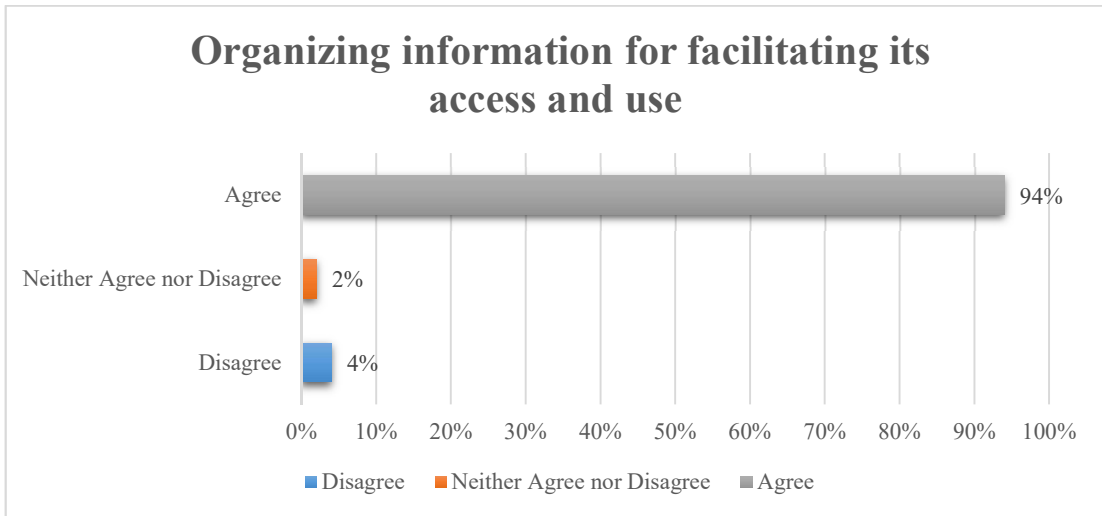
Figure 27 Organizing information for facilitating its access and use

The respondents were asked if it is important to organize information in such a way to facilitate its access and use. (Section 9, Question 19-sq1) Nearly all the respondents, 94% agreed on the importance of having information organized in a way that enables its future access and usage, 4% disagreed, and 2% were uncertain. The result in Figure 27 indicates that the respondents understand the importance of having information strategically organized so it can be efficiently accessed and used in the workplace.
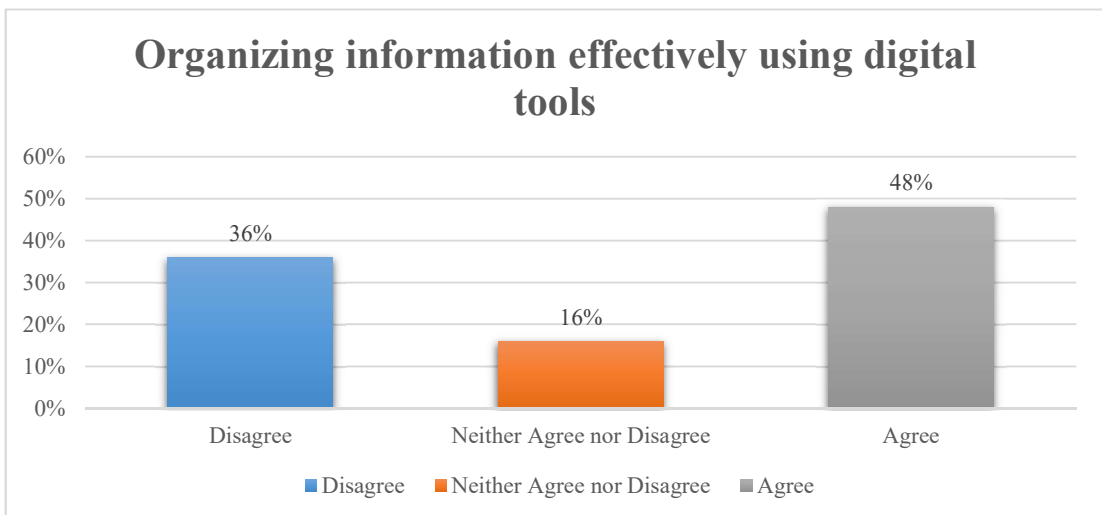
Figure 28 Organizing information effectively using digital tools

However, when asking the respondents if they have difficulty in using different digital tools like the Intranet and mobile devices, to organize information in the workplace, the response rate began varying. (Section 9, question 19-sq3) Some of the respondents, 48% affirmed having difficulties in using digital tools to organize information at work, 36%

disagreed, and 16% were unsure. The results in Figure 28 indicate that regardless of recognizing the importance of keeping information organized for future access and use, the respondents may have difficulties in organizing information effectively using digital tools.
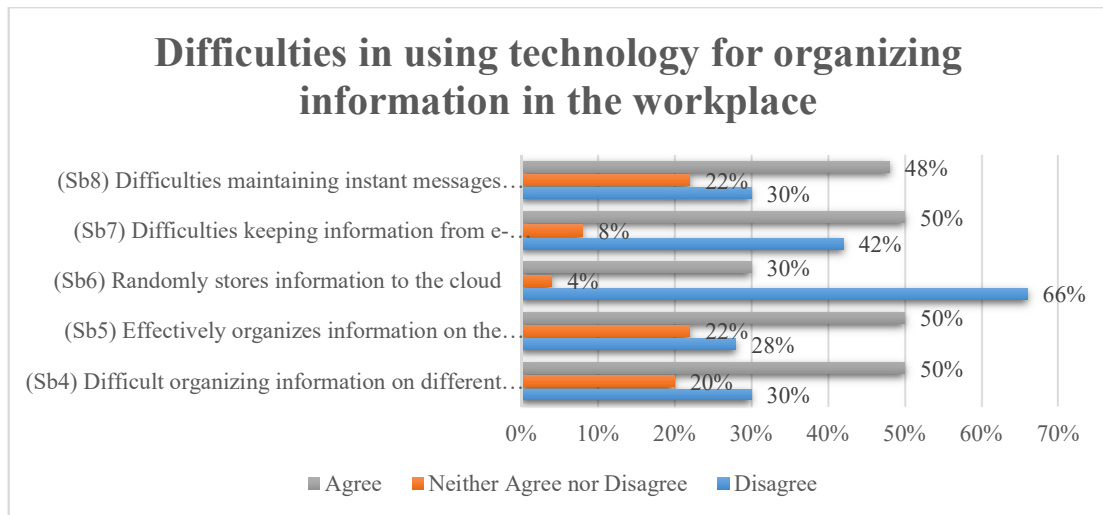
Figure 29 Difficulties in using technology for organizing information in the workplace

When further asked about their ability to use different types of technology to organize information, the response rate varied again. (Section 9, Question 19, sq4, 5, 6, 7 and 8) Half of the respondents, 50% affirmed having difficulty in organizing information on different digital devices, 30% disagreed, and 22% were unsure. (Sub-question 4) Again, half of the respondents, 50% agreed on having difficulty in organizing information on the Intranet, 28% disagreed, and 22% were unsure. (Sub-question 5) Moreover, a small part of the respondents, 30% agreed on not being able to organize information on the cloud, 66% disagreed, and 22% were unsure. (Sub-question 6) Furthermore, half of the respondents, 50% affirmed having difficulty in organizing the information received from e-mails, 42% disagreed, and 8% were unsure. (Sub-question 7) Then, almost half of the respondents, 48% affirmed having difficulty in organizing the information received through Instant Messages, 30% disagreed, and 22% were unsure. (Sub-question 8) The results in Figure 29 indicate that the respondents may sometimes have difficulties in using different digital tools for organizing information at work. Apparently, the way in which the respondents organize information may vary and may be affected depending on the technology available in the workplace.

Using technology for sharing information

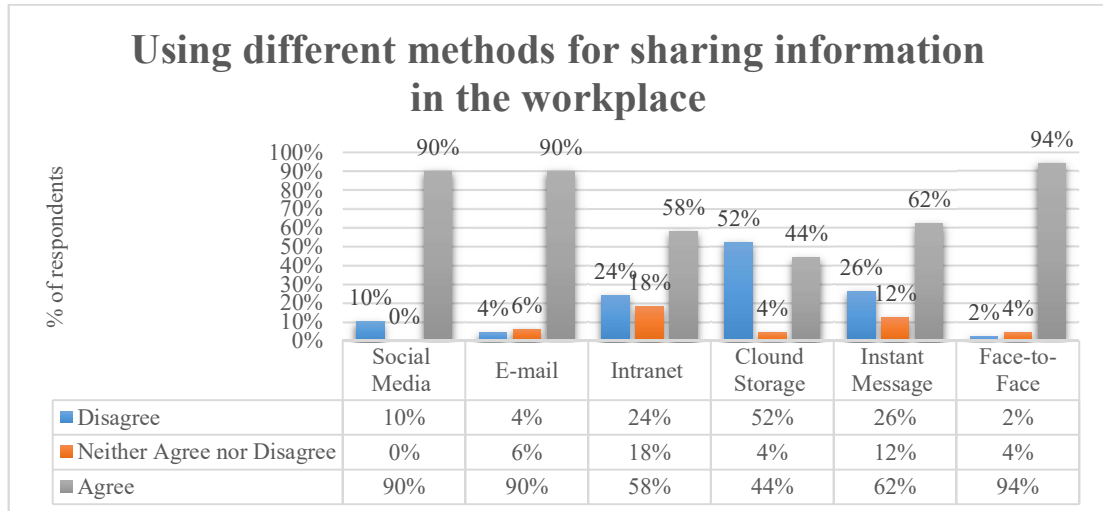Next, the study investigates how employees share information in the digital workplace using technology.

	Social Media	E-mail	Intranet	Clound Storage	Instant Message	Face-to-Face
■ Disagree	10%	4%	24%	52%	26%	2%
■ Neither Agree nor Disagree	0%	6%	18%	4%	12%	4%
■ Agree	90%	90%	58%	44%	62%	94%

Figure 30 Using different methods for sharing information in the workplace

The respondents were presented with a set of alternatives to choose from, including face-to-face, e-mail and Instant messages, social media channels, the Intranet and cloud storage. (Section 10, Question 21-sq8) Then, they were asked to choose among the options, those that were mostly used for sharing information in the workplace. Nearly all the respondents, 94% selected (face-to-face), 90% (social media), 90% (e-mails), 62% (instant messages), 58% (Intranet) and 44% (cloud storage), as the mostly use communication methods for sharing information in the workplace. The result in Figure 30 indicates that the respondents prefer to share information in face-to-face contacts rather than using communication technology. However, it also shows that communication technology still valued and frequently used for sharing information in the workplace, thus it may be interpreted as that the respondents prefer to share information through direct contact than by using the communication technologies that are available in the workplace. Therefore, communication technology may be used only for facilitating the process of information sharing, and most knowledge transfer may happen during the face-to-face contacts.
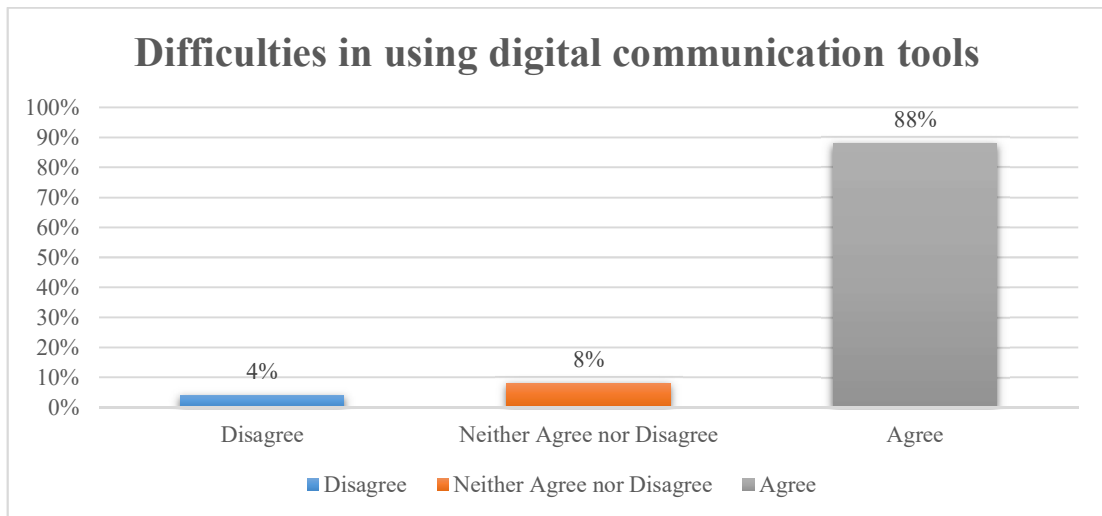
Figure 31 Difficulties in using digital communication tools

Moreover, the respondents were asked if they have difficulties working with different information sharing systems and software. (Section 10, Question 21-sq7) Most of the respondents, 88% agreed on having difficulties in using systems and software designed for enabling information sharing in the workplace, 4% disagreed and 8 % were unsure. The result in Figure 31 indicates that employees may not possess the necessary digital literacy skills to work with information sharing systems and software, this may be understood as the rapid development of technology severely affects the respondent's ability to use new technology, and to perform their work successfully in the workplace.
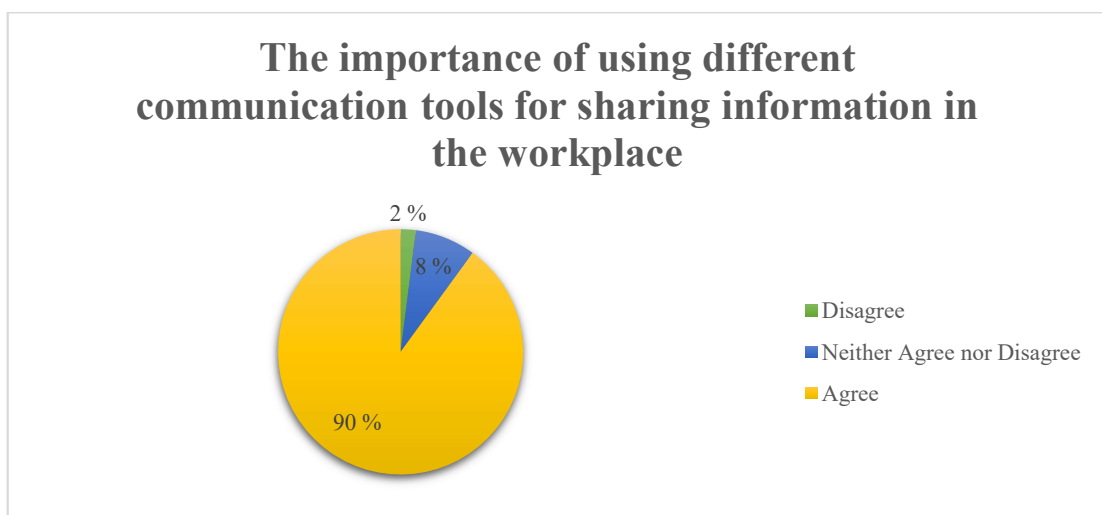
Figure 32 The importance of using different communication tools for sharing information in the workplace

Here, the idea was to investigate if the respondents consider it relevant to use different information sharing technologies efficiently in the workplace.

The respondents were asked if it is important to know how to share information using various systems. (Section 10, Question 22-sq8) Most of the respondents, 90% agreed on the importance of knowing how to use diverse methods for communicating information, 2% disagreed, and 8% were uncertain. The results in Figure 32 indicate that the respondents recognize the importance of being able to use different digital tools for communicating information across the workplace.

Sharing digital information ethically

In this part, the study investigates if the respondents ethically use and share information in the digital workplace. The respondents received several statements concerning copyright and intellectual property. (See the survey section 12) The intention was to study how the respondents perceived and followed ethical guidelines in the digital workplace.
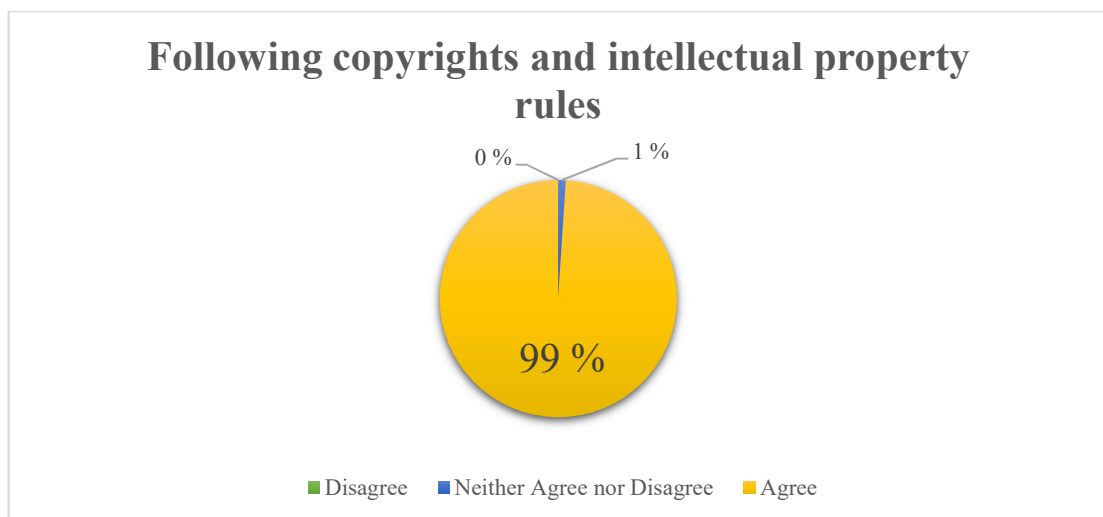
Figure 33 Following copyrights and intellectual property rules

The intention here is to see if the respondents recognize the importance of using and sharing information ethically inside and outside of the workplace. Thus, the respondents were asked if it is important to respect other people's ideas and creativity. (Section 12, Question 23-sq8) In other words, if it is critical to follow the copyrights and intellectual property rules when performing their work inside and outside the workplace. Nearly all the respondents, 99% agreed on the importance of complying with copyright and intellectual property rules in both inside and outside the workplace, and 1% were unsure. The result in Figure (33) indicates that the respondents recognize the importance of complying with the rules of copyright and intellectual property when using and sharing

information in the digital environment. The result also shows that the respondents are aware of the consequences of not following the rules which ensures the ownership rights of other people appropriately.
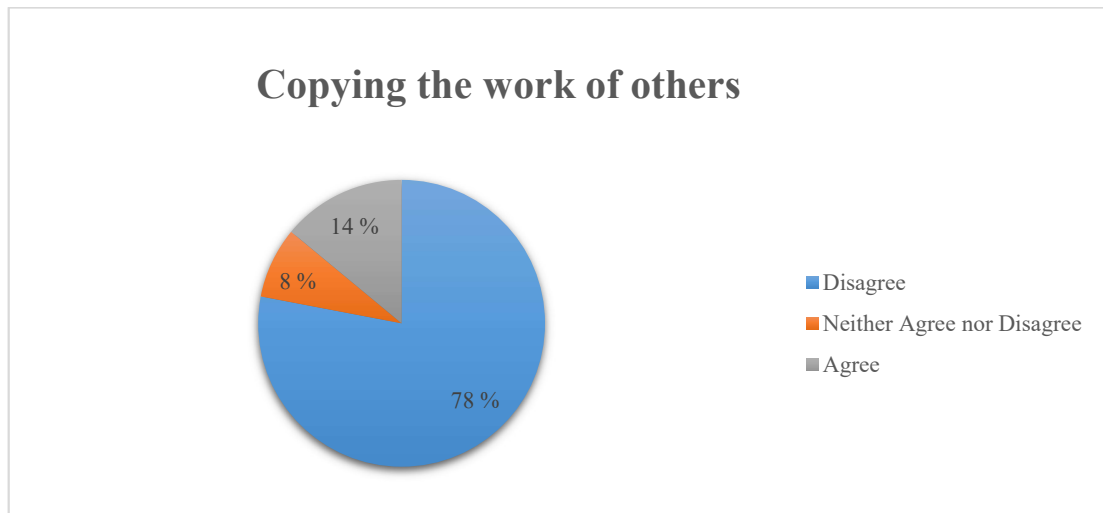

Figure 34 Copying the work of others

Previously, the results of Figure 33 have shown that the respondents are aware of the risks involve in using and sharing digital information without the consent of its official owner. However, when asking the respondents if they would copy and paste information from the Internet directly to their work, (Section 12, Question 23-sq2) the response rate then change. A small percentage of the respondents, 14%, admitted to having copied and pasted information from the Internet directly to their work. 78% opposed the idea, and 8% were neutral. The results in Figure 34 indicate that most of the respondents may avoid plagiarizing another person's work. Therefore, showing that the respondents may ethically use and distribute information across the workplace. Nevertheless, the results also show that not all respondents recognize the importance of complying with the rules of copyrights and intellectual property rights, therefore, they may unethically use and share information.

The importance of obtaining permission to use the work of another person

4 % 6 %

90 %

- Disagree
- Neither Agree nor Disagree
- Agree
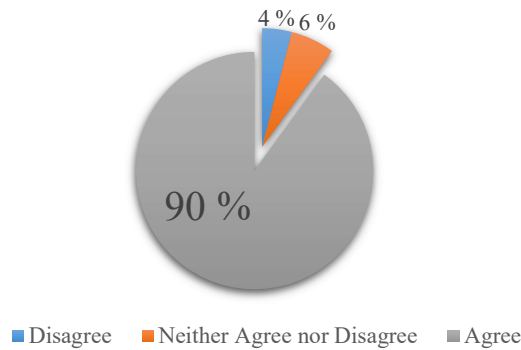
Figure 35 The importance of obtaining permission to use the work of another person

Furthermore, the respondents were asked if it is important to gain approval to use someone else's work. (Section 12, Question 23-sq10) Most of the respondents, 90% agreed on the importance of receiving permission before using someone else's work, 4% disagreed, and 6 % were uncertain. The result in Figure 35 indicates that the respondents are aware of the ethical rules concerning the use and distribution of digital information, and aware of the importance of using information responsibly in the workplace.

The importance of obtaining permission to share the work of another person

2 %

6 %

92 %

- Disagree
- Neither Agree nor Disagree
- Agree

Figure 36 The importance of obtaining permission to share the work of another person

Moreover, the respondents were asked if it is important to gain permission before distributing copyrighted information at work. (Section 12, Question 23-sq11) Most of the respondents, 92% agreed on the importance of gaining authorization before sharing someone else's work, 2% disagreed, and 8% were unsure. The results in Figure 36

indicate that the respondents may be highly aware of the risks associated with the unauthorized distribution of copyrighted work in a digital environment.
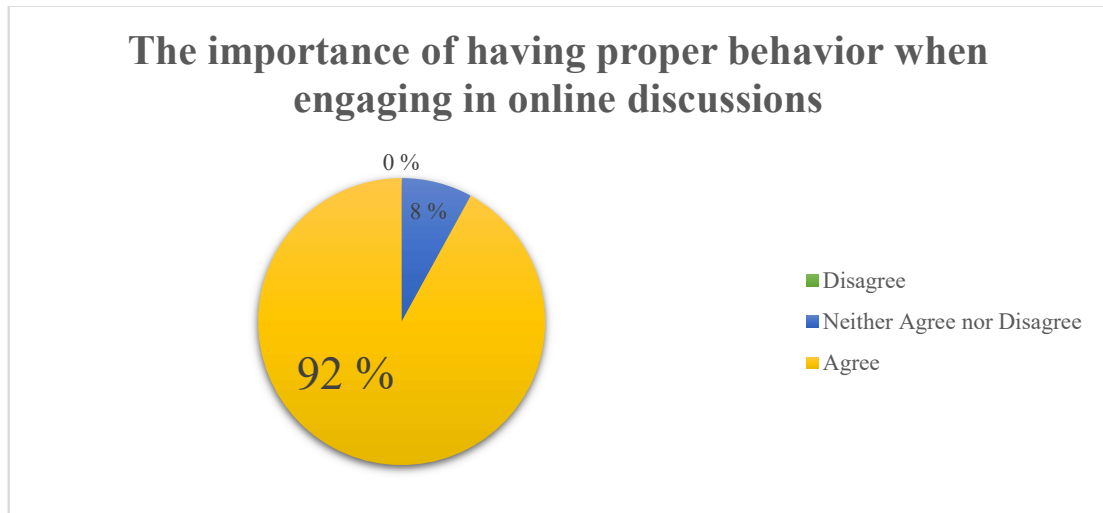
Figure 37 The importance of having proper behavior when engaging in online discussions

The idea here is to learn if the respondents follow any protocols when engaging in online discussions. Therefore, the respondents were asked about their behavior while taking part in online conversations. (Section 12, Question 23-sq12) Most of the respondents, 92% agreed on the importance of respecting others while engaging in online discussions, 8% were uncertain. The results in Figure 37 indicates that the respondents may be aware of the importance of following norms to ensure proper online etiquette and build trust among network members. Also, it shows that the respondents understand how misbehavior online affects their reputation among community members.

The promotion and support of IL in the digital workplace

Previously, the study examined how the employees in the digital workplace perceived IL. In this part, the study focus is to find what organizations are doing to support the development of IL in the digital workplace. Therefore, to reveal this, the same individuals being study were invited to share their thoughts on the support and possibilities available to help them to develop IL skills in the workplace.

Facilitating information access in the workplace
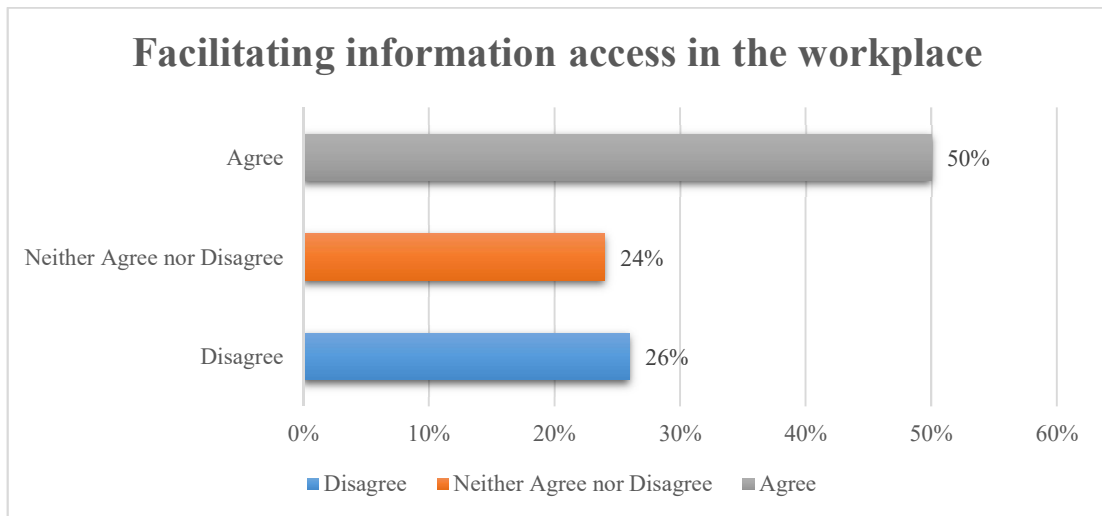
Figure 38 Facilitating information access in the workplace

As previously shown in Figure 4 page 50, the respondents recognized the importance of knowing how to access information efficiently. Therefore, here the intention is to investigate if organizations are facilitating information access by organizing it according to the employees' needs.

The respondents were asked if the information is organized in a way which makes it easy to access in the workplace. (Section 4, Question 11-sq7) Half of the respondents, 50% agreed that the way in which the information is organized facilitates its access, 26% disagreed, and 24% were unsure. The results in Figure 38 can be interpreted to show that the organizations may not always have information organized in a way which facilitates information access. Therefore, the respondents may have difficulties in finding and accessing the information needed for performing their tasks at work, which this may cause them to use other alternatives.
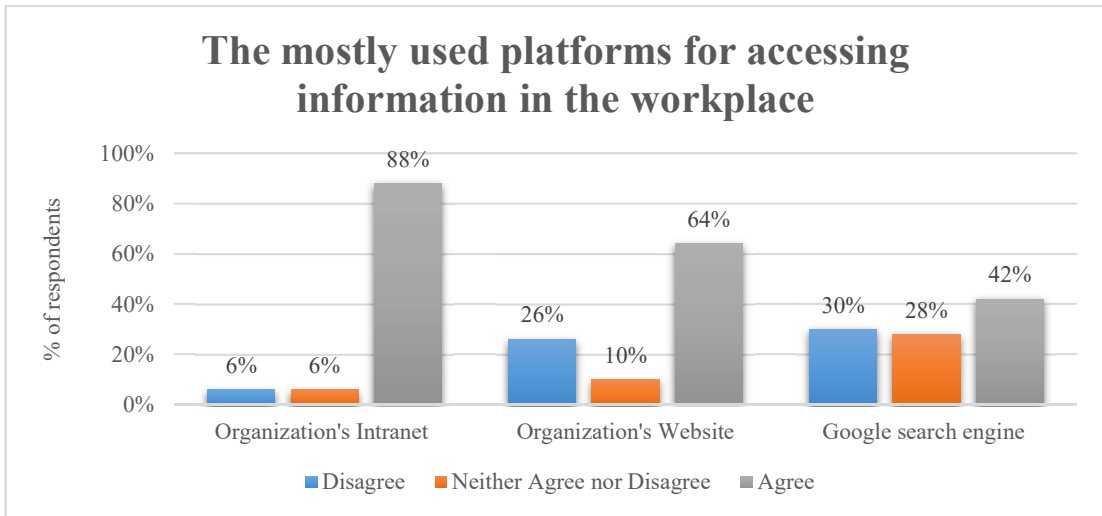
Figure 39 The mostly used platforms for accessing information in the workplace

Next, the respondents were given three alternatives to choose from, the organization's Intranet, a website, and Google. Then, they were asked to choose the platform which was mostly used for accessing work-related information at work. (Section 4, Question 11-sq1, 2, 3) Most of the respondents, 88% chose (the Intranet) as the platform mostly used at work, 64% (the website), and 42% (Google). It seems that the respondents are divided on the value of Google as a useful platform to access work-related information. One of the reasons could be that Google provides an extensive number of unfiltered search results and is not as secure as the other alternatives. On the contrary, the other alternatives give specific research results which facilitate information discoverability.
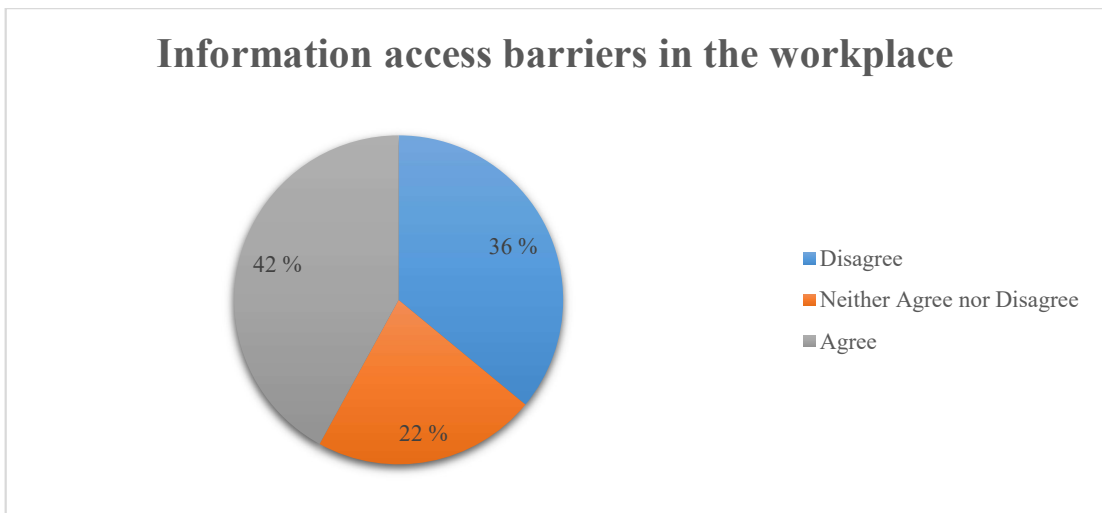
Figure 40 Information access barriers in the workplace

Moreover, the idea here is to investigate if organizations are helping the employees to manage information by reducing barriers to its access. Thus, the respondents were asked if they encounter any limitation in information access at work. (Section 4, Question 11-sq8) Less than half of the respondents, 42% agreed that they have problems in accessing information at work due to access restrictions, 36% disagreed, and 22% were unsure. The results in Figure 40 may be interpreted as that some of the respondents may have more flexible access to information than others. One explanation can be that some organizations are more cautious with sensitive information than others. Additionally, the respondents may also be referring to the access limitations to academic and other scientific materials which frequently requires a subscription for being able to access information. Therefore, the result indicates that organizations are not doing enough to facilitate information access in the workplace.
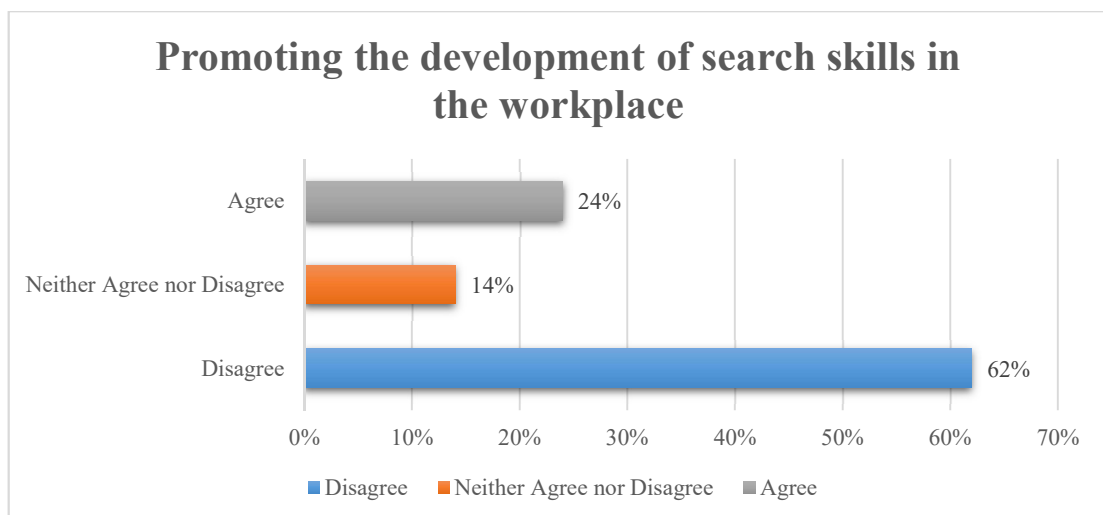
Figure 41 Promoting the development of search skills in the workplace

Next, the aim is to learn if organizations are promoting the development of search skills to facilitate information discoverability in the workplace. The respondents were asked if they have received training at the beginning of their employment concerning the proper use of search tools and search techniques. (Section 6, Question 13-sq2) A small percentage of the respondents, 24% confirmed having received training and guidance regarding search skills at the beginning of their employment, 62% disagreed, and 14% were unsure. The result in Figure 41 indicates that not enough training and guidance regarding information search skills is available in the digital workplace. Therefore, the

respondents may be left to learn how to use search tools and techniques on their own. One explanation could be that some organizations may lack resources to invest in training and development of the employees.
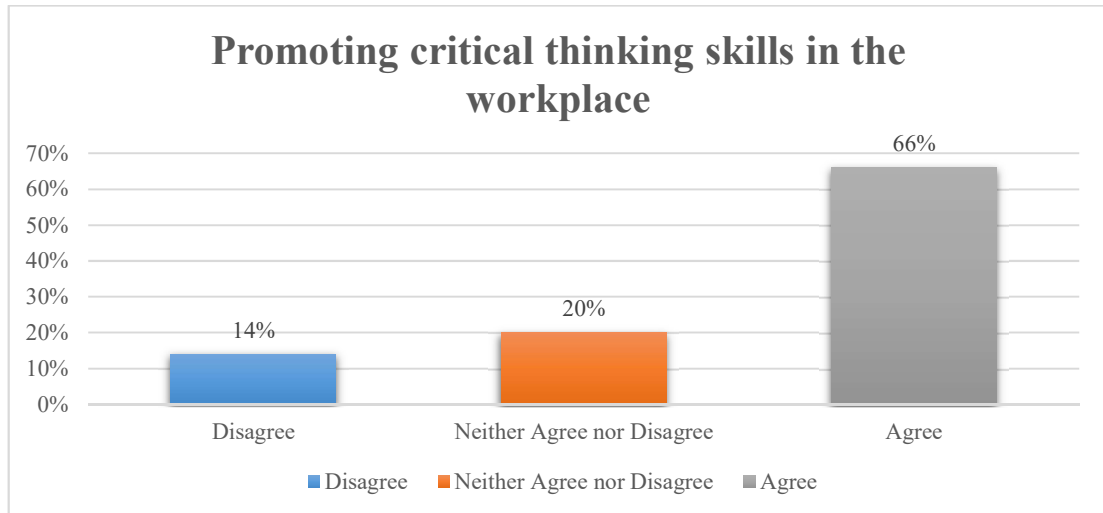
Promoting critical thinking skills in the workplace

Figure 42 Promoting critical thinking skills in the workplace

Moreover, the object here is to investigate if the respondents have the possibility, to interact with other employees to exchange knowledge and to develop critical thinking skills. The respondents were asked if they receive support to develop critical thinking skills in the workplace. (Section 7, Question 16-sq2) A little over half of the respondents, 66% agreed to receive support to improve their critical thinking skills, 14% disagreed, and 20% were uncertain. The results in Figure 42 show that some organizations may promote the transferring of knowledge and the development of critical thinking skills, but this may not always happen in all organizations.

Introducing new technology into the workplace

Disagree
Neither Agree nor Disagree
Agree
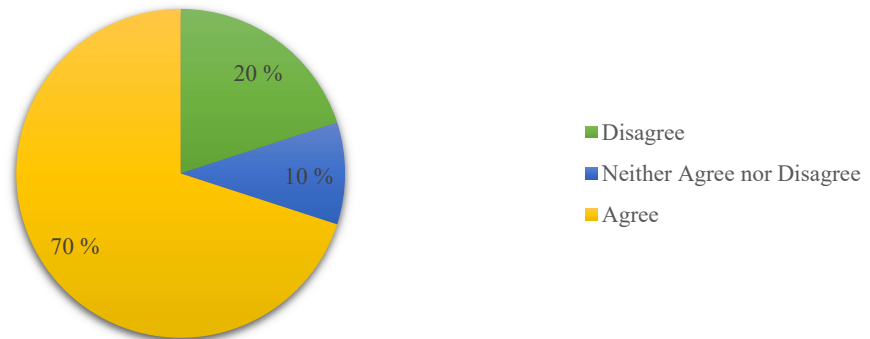
Figure 43 Introducing new technology into the workplace

In this part, the intention was to learn if the organizations are focusing extensively on technology. Therefore, the respondents were asked if new technology is often introduced to the workplace. (Section 9, question 19-sq2) A little less than three quarters of the respondents, 70% agreed that organizations often invest in new technology to facilitate information management in the workplace, 20% disagreed, and about 10% were uncertain. The result in Figure 43 indicates that most organizations may be investing profoundly in the acquisition of new technology to facilitate information management in the workplace. One reason for this could be that the organizations believe that technology alone will help to improve information management efficiency in the workplace (Lang, 2001; O'Sullivan, 2005; Saulles, 2007; Lloyd, 2010; Chinien & Boutin, 2011; Mitchell, 2017).
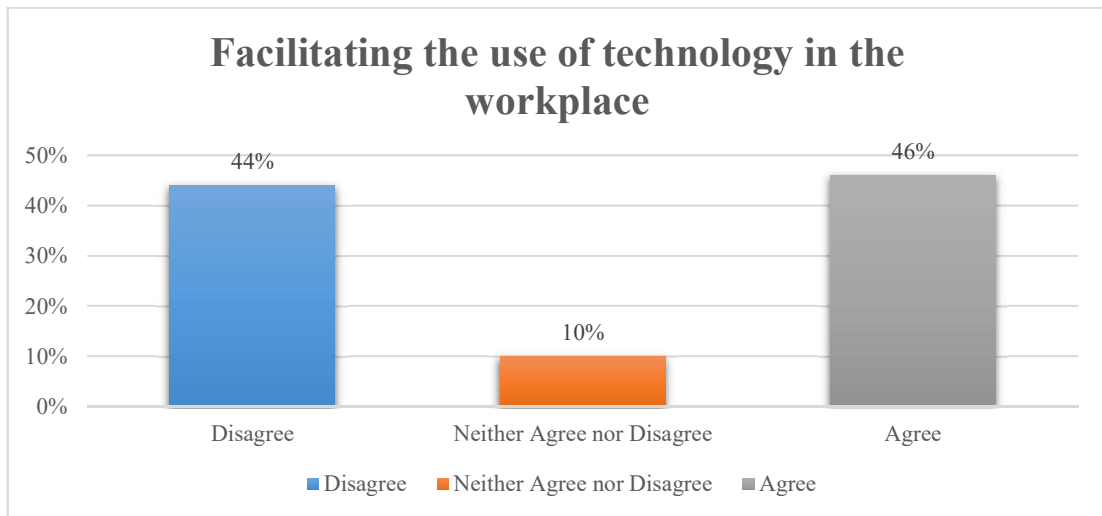
Figure 44 Facilitating the use of technology in the workplace

Moreover, the idea here is to investigate if the organizations are helping the respondents to develop their communication skills by providing training regarding the use of communication technology. Thus, the respondents were asked if they receive training on how to use new communication technology. (Section 10, question 21-sq9) Less than half of the respondents, 46% agreed on receiving instructions concerning the use of communication technology, 44% disagreed, and 10% were unsure. The results indicate that the respondents receive instructions on how to use advanced information communication technology in the workplace. However, it seems that not all organizations are focusing on the development of digital communication skills in the workplace. One reason could be due to the size of the organizations, and possibly the number of funds available for investing in the training and development of the employees. Another reason could be that the type of tasks performed by the respondents may not require the use of advanced communication technology tools.
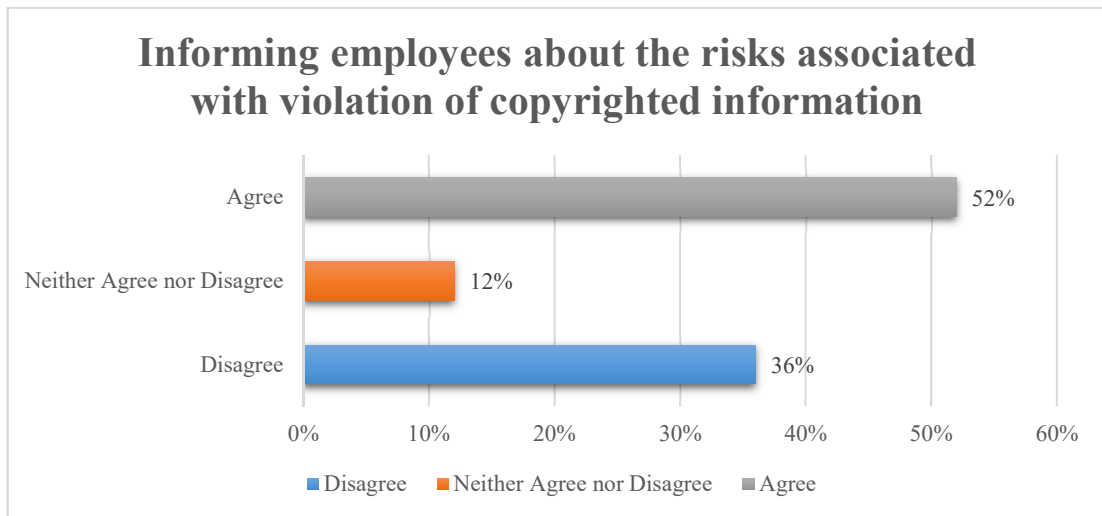
Figure 45 Informing employees about the risks associated with violation of copyrighted information

In this part, the idea was to investigate if the organizations were doing enough to keep the respondents informed about the legal risks related to copyright and intellectual property. In other words, whether or not the organizations are providing enough instructions to the respondents on how to properly use and share the digital material found on the Internet inside and outside the workplace. Thus, the respondents were asked if they have received instructions, or if they were reminded about the risks associated with the illegal use and distribution of information in the digital environment. (Section 12, Question 23-sq5) A little over than half of the respondents, 52% agreed on receiving some form of introduction on how to use and share information or were reminded about copyright and intellectual property rules, 36% disagrees, and 12% were unsure. The results in Figure (45) indicate that some organizations may have guidelines on how to use and share information without infringing the copyrights and intellectual property rules. However, the results also show that not all organizations inform their employees about the risks regarding illegal use and distribution of information in the workplace. One explanation could be that the managers and business owners may themselves be unaware of copyright and intellectual property rules.
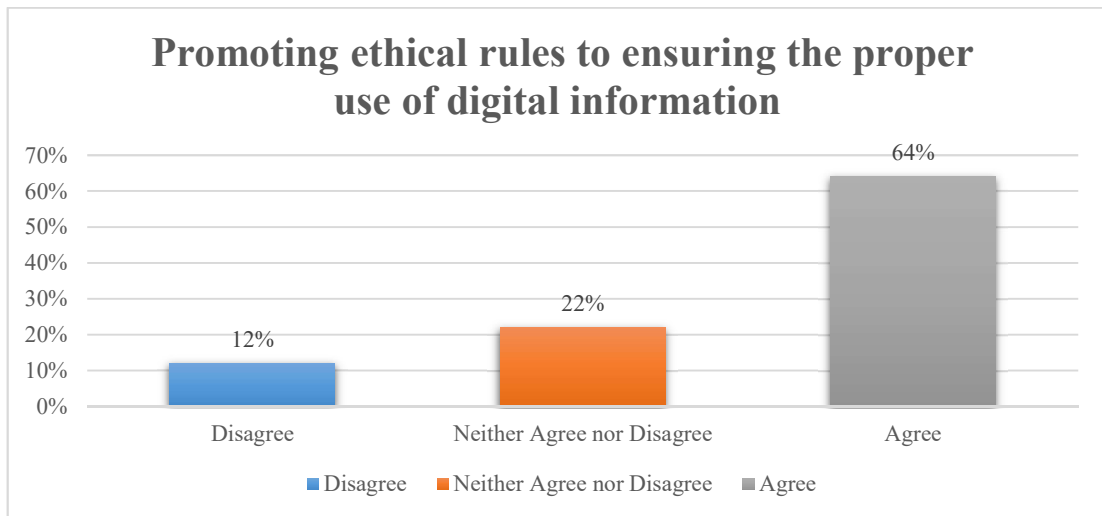
Figure 46 Promoting ethical rules to ensuring the proper use of digital information

Moreover, an organization certainly needs to have guidelines in place to remind the employees of their responsibilities towards copyright and intellectual property right. Therefore, the respondents were asked if guidelines existed to ensure the responsible use and distribution of digital information in the workplace. (Section 12, Question 23-sq6) A little more than half of the respondents, 64% indicated that the organization had guidelines in place to ensure that digital information was properly managed, while 22% of the respondents indicated that guidelines were not available, and 12% were unsure. The results from the Figure (46) indicate that some organizations have guidelines on copyright and intellectual property right available for helping employees to use and share information responsibly in the workplace. However, it may be understood that not all organizations are concerned about the proper use and distribution of digital information in the workplace. One explanation may be that some organizations may have outdated guidelines. Once guidelines are introduced, it often happens that they are never promote again, or assessed to ensure that they still fulfill the organization's requirements. Therefore, the employees over time may forget about the existence of the guidelines that were once introduced. As a result, this may increase the chances of improper information management in the workplace.

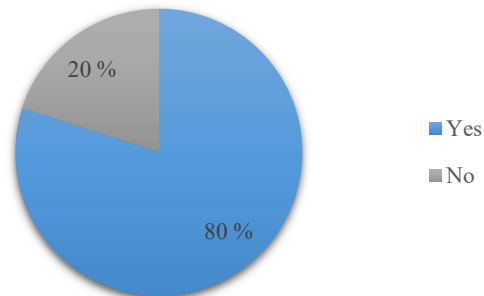## Supporting the management of information in the workplace

Figure 47 Supporting the management of information in the workplace

The idea was to investigate if the organizations are supporting the development of information management skills among employees in the digital workplace. Here, the respondents were asked if the development of information management skills is supported in the workplace. (Section 13, Question 24) Most of the respondents 80% indicated that the development of information management is supported in the digital workplace, while 20% indicated that it is not support. The result in Figure 47 indicates that organizations do support the management of information in the workplace. However, it may be understood that not all organizations do enough to support information management, nor do they support the development of information management skills among employees.

Promoting the development of information management skills
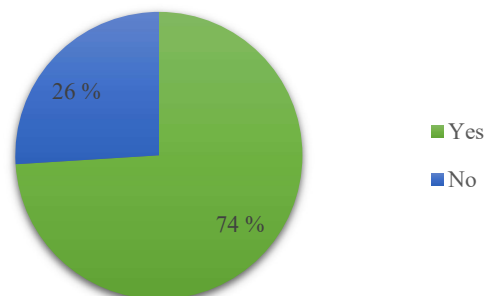
Figure 48 Promoting the development of information management skills

The idea here was to investigate if the organizations provided enough training and time for the employees to develop their information management skills at work. Therefore, the respondents were asked if there was enough opportunity for them to develop information management skills in the workplace. (Section 13, question 25) Almost three quarter of the respondents, 74% indicated that they have enough opportunity to develop information management skills, whereas 26% indicated that they did not have enough opportunity to develop their information management skills. The result in Figure 48 indicates that the organizations give the respondents enough opportunity to develop their information management skills in the workplace. However, it also indicates that the opportunity to develop information management skills might not always be available for the respondents in the digital workplace.

Figure 49 Aligning information management with the organization's strategy

Furthermore, the respondents were asked if information management was part of the organization's strategy. (Section 13, Question 26) A little over half of the respondents, 64% indicated that information management was included in the organization strategy, 36% of the respondents indicated that it was not part of the organization strategy. The result in Figure 49 indicates that some of the organizations will have information management included in the business strategy and others will not have it included.

Open questions

Moreover, the respondents were asked to indicate what types of support were available to facilitate the development of information management skills in the workplace. (Section

13, question 27) A total of 48 respondents have replied to the question, and two of the respondents chosen not to answer the question. Thus, the respondents' responses are as follows.

The responses provided by the respondents indicate that information technology (IT) may be the core focus in most organizations. Information technology was described several times as information management support. This may be because of the assistance provided by the IT department, whenever the respondents have technical difficulties in using the digital equipment found in the workplace, which they cannot overcome by themselves. Therefore, the respondents may perceive information management support as the support provided by the IT personnel. The respondents have, however, include the technical and operational guidelines written by the IT personnel, and left on the organization's Intranet for the respondents to consult whenever needed, as a type of support available. Additionally, computer programs such as "Enterprise resource planning (ERP)" and "Quality management system (QMS)" have also been described as another type of support available. Moreover, some other responses include e-mail, social media, web sites, the Intranet and even Google as types of information management support provided in the workplace. The information above may be interpreted as some employees may perceive IL as IT support, because in most organizations the focus is to support the development of IT skills by assisting the respondents whenever there is a lack of skills that are needed to cope with digital equipment's technical and operational problems. Therefore, the amount of support for helping the respondents to overcome technical and operational difficulties may be greater than the amount of support available for helping them to manage information in the digital workplace. Regardless, the responses have also shown that some organizations are having a flatter organizational structure to facilitate the transfer of information and knowledge between the employees. Hence, organizations are attempting to facilitate the transfer of IL skills by promoting more interaction between employees through workshops, group discussions, face-to-face meetings, and mentoring. Therefore, organizations are creating open cultures to stimulate more collaboration, trust, and to facilitate information access and sharing between employees in the workplace.

Furthermore, one of the responses includes keywords such as "confidentiality", "integrity", and "availability" to describe the type of information management support available in the workplace. Information security can certainly help to prevent confidential information from being mistakenly accessed and distributed by the wrong person. Moreover, when referring to integrity, the respondent probably meant the guidelines in place to reinforce the ethical use and distribution of information. In addition, information availability is important, because without the information an employee would not be able to perform all the tasks at work. The three keywords (confidentiality, integrity, and availability), clearly relate to information management. This may be interpreted as some organizations having information management deeply rooted in the business strategy.

Additionally, some of the responses include training, seminars and case studies as types of information management support, whereas another response includes blogs, for facilitating the sharing of internal information and expertise in the workplace. Moreover, other responses include a community of practice, information management courses, visual presentations, case studies, and mentorship. Besides, one of the respondents wrote that training is not always available in small companies, meaning that the employees are frequently asked to use good judgment when using information at work

9 Discussion

The aim, stated at the beginning of this study, was to investigate how the employees perceived IL, and how the organizations were supporting the development of IL skills among employees in the digital workplace.

The empirical data obtained through the survey indicate that the employees perceive IL as IT skills or experience it as information technology (Bruce, 1999). Regardless, the data also show that most of the employees in the digital workplace have a good level of IL skills. Additionally, this study shows that in the digital workplace, most of the support available is directed at the development of IT skills among respondents, confirming the theory of previous researchers that organizations are more likely to invest in technology than in the development of IL skills among respondents (Bawden, 2001; Lang, 2001; O'Sullivan, 2005; Saulles, 2007; Lloyd, 2010; Chinien & Boutin, 2011; Mitchell, 2017).

Search for information

The results from the study show that information search strategies and the ability to use search techniques are both highly important in the digital workplace. In addition, it shows that the respondents value the possibility of having fast access to information. It also shows that the respondents carefully plan how to search for information using different digital devices, but all the respondents in the digital workplace may not use best practices equally. Therefore, the respondents may not always search for information strategically. Thus, the respondents may randomly enter words into a search engine while searching for information online, which may lead them to spend a considerable amount of time searching for information that is required to perform their work (Hargittai, 2005). Hence, it seems that respondents may not properly use search techniques, information retrieval tools, or other advanced information management tools that are used for accessing digital information, as mentioned in Table 1 (SCONUL, 2016).

Therefore, considering the above findings, it may be beneficial for an organization to invest in the development of the employees' searching skills (Hobbs, 2010), as this may help the employees to search for digital material more effectively. It seems that this is an area which does not receive enough attention. Apparently, the organizations do not provide enough support to help the respondents to develop their information search skills

in the workplace. Moreover, Shah et al. (2012) argue that without proper support, employees will have to learn how to search for information on their own. However, this might be challenging to do, especially when problems can occur while the employees search for information at work, preventing them from performing their work. It may only be beneficial for an organization to support the development of the employees' information searching skills in the digital workplace.

Moreover, the results indicate that the respondents mostly use the organization's Intranet and Websites search engine to access information at work. However, Google's search engine is used sometimes when the respondents quickly need to find information that is work related. One explanation for this could be that the respondents are unfamiliar with the organization's Intranet and webpage design. Another reason could be that both the Intranet and Webpage are overly complicated for the respondents to use (White, 2012). White (2012) argues that employees may sometimes resist using technology that is difficult to understand and use. Moreover, another explanation could be that not enough training in how to use the organization's Intranet and website is available to the respondents. Hobbs (2010) suggests that training must be provided for improving the employees' ability to use technology, as it facilitates the transfer of knowledge. It seems that the organizations are more concerned about adopting new technology than about providing training to help the respondents to use technology more effectively in the workplace.

Furthermore, the result has indicated that the respondents may not always observe the format of information during the evaluation process. This shows that respondents may not know how to evaluate the format of digital material properly, as specified in Table 1 (SCONUL, 2016). Apparently, the respondents understand the importance of having information in the right format in the workplace. Regardless, it seems that the information format can often be an issue in the digital workplace. This may be because of the greater variety of information that is available today, which may create problems for the respondents when managing information at work. Therefore, having the information in the right format facilitates information management, as well as access and distribution of it.

Evaluating information

The respondents are very much aware of where to find reliable and accurate information. However, the results show that respondents may not always use reliable and accurate information sources. As indicated in the results, information is occasionally obtained from the Internet and directly from nearby colleagues, confirming the theory of several authors that employees often obtain information from nearby colleagues before consulting other information sources (Bruce, 1999; Nardi, et al., 2000; Dalton, 2013).

Additionally, the respondents recognize the importance of information context awareness in the digital workplace. The results show that the respondents understand how context impacts information and the interpretation of information. According Goad (2002), a clear understanding of context can facilitate the interpretation of data and information. Thus, one way to understand how context affects interpretation would be by looking at proverbs. For instance, a commonly used proverb in Brazil is "cada macaco no seu galho", which translates into English as "each monkey on its own branch". The Brazilian proverb may not make much sense to a non-Brazilian citizen. However, for a Brazilian citizen, it simply means that a person should know his place, and should not intrude in the place, life and problems of others, especially when the person lacks the competency to help. However, a non-Brazilian national, who lacks the contextual knowledge, would perhaps interpret the proverb in a different way. Therefore, when an employee moves from one place to another, the way he understands, judges and evaluates information will differ depending on the level of contextual knowledge that the employee possesses (Cornelius, 1996; Lloyd, 2010). Just like the example of the Brazilian proverb, the absence of contextual knowledge can create confusion when trying to make sense of information. Nevertheless, to overcome the problem of an absence of contextual knowledge, an employee needs to have time to gain contextual knowledge, and only then would the employee make proper interpretation of unfamiliar context. Lloyd (2010) argues that time is necessary, because skills obtained from one place will not fit in a new place, at least not immediately.

Contextual knowledge facilitates the critical analysis and evaluation of information. Goad (2002) argues that in the process of critical thinking, a person uses contextual

knowledge, belief, values and interpretations to make sense of raw data and information as well as make sense of different tools and systems used for processing digital material. Moreover, he argues that critical thinking is extremely important when analyzing and evaluating both printed and digital information.

The results indicate that the respondents recognize the importance of using critical thinking when analyzing and evaluating information. The results also show that the respondents know how to critically analyze and evaluate information that is published on the Internet. Thus, it goes against the assumption that employees lack critical thinking skills to analyze and evaluate the quality of digital information effectively (Fieldhouse & Nicholas, 2008). Besides, the result shows that the employees' skills parallel the description found in Table 1, where it states that a digitally literate person should know how to "assess the suitability of digital content for the intended audience, assess the quality, accuracy, relevance, credibility, format and accessibility of digital material, read online information critically" (SCONUL, 2016).

Improving critical thinking and communication skills

With the variety of digital material that is available today, the development of critical thinking skills should still be promoted in the digital workplace (Hobbs, 2010); apparently, this is recognized by some, but not all organizations. Critical thinking is crucial to acquire information for decision-making. However, the development of the employees' critical thinking skills does not seem to be widely supported in the digital workplace, even though most organizations consider it important that employees have critical thinking skills. The amount of effort spent on helping the employees to develop critical thinking skills does not compare to the amount of effort spent on introducing new technology into the workplace.

Regardless, the organization should try to help the employees to improve their critical thinking by motivating them to engage in more personal and virtual conversations. (Gokhale, 1995; Dervin, 1997; Goad, 2002; Hobbs, 2010). This is important, because IL skills and critical thinking skills (Goad, 2002; Lloyd, 2010) are developed by the frequent interactions the employees have both virtually and in the workplace. Therefore, the daily interaction the employees have with each other plays an important role in building a

common understanding of context (Gokhale, 1995; Dervin, 1997; McMahon & Bruce, 2002; Goad, 2002; Hobbs, 2010; Lloyd, 2010). Moreover, it may be beneficial for the organizations to provide digital communication training to the employees, because it may help them to distribute information more effectively in the workplace (SCONUL, 2016). However, it seems that some organizations are having difficulties recognizing the importance of developing digital communication skills among the employees in the digital workplace. Depending on the type and size of the organizations and amount of resources, only a few employees will have the opportunity to develop their critical thinking skills in the workplace. Thus, this may indicate that the development of critical thinking will not always be support in the digital workplace.

Organizing information (Managing)

There are many ways of organizing digital content in the digital workplace. However, the digital material inside most organizations is not always organized with the user in mind. (Chowdhury & Chowdhury, 2007; White, 2012). Some employees will have more difficulty finding and accessing information than others. Nevertheless, information discovery and access can be facilitated by using proper organizational methods in the workplace (Chowdhury & Chowdhury, 2007). However, it seems that this is not the case in the digital workplace; the results show some respondents have more challenges in accessing information than others and are, thus, indicating that information is not organized in a way that the respondents can easily find and access.

Nevertheless, the results also show that the respondents recognize the importance of having information organized properly to facilitate its discoverability and use when required. Regardless, it seems that the respondents have some challenges in organizing digital material using different types of technology in the workplace. Therefore, this indicates that not all the respondents can utilize digital tools to organize digital content, data, and to cite and refer to electronic sources or manage digital resources as it is described in Table 1 (SCONUL, 2016). One reason for this could be that the type of technology available is too advanced, and the respondents may not receive enough instructions on how to use it effectively. It can also be the respondents' roles and tasks which may take most of their time, preventing them from learning how to properly use

the technologies available at work. Another reason could be that the respondents may not have a standard way of organizing digital resources, consequently, forcing them to develop and use their own organizational methods, which may not always be the most effective methods of organizing digital resources (Chowdhury & Chowdhury, 2007). Additionally, it can be due to differences in the level of education among the respondents.

Information sharing (Present)

The digital workplace is built based on technology that facilitates collaboration and information sharing (Miller, 2012). Therefore, it is crucial for an employee to be able to use a variety of digital tools and media channels to communicate and distribute information successfully in the digital environment. Hence, organizations should always make sure that all employees possess enough technical skills to utilize all types of technologies to share information efficiently across the workplace. Besides, an employee should know how to use and share digital information ethically and understand the importance of proper behavior in the digital environment (ALA, 2000; Bawden, 2001). Regardless, it seems that the respondents are aware of the above, especially the fact that they must follow ethical codes when sharing information in the digital environment (Hobbs, 2010).

Moreover, the results also show that the respondents recognize the importance of knowing how to use a variety of digital tools for surviving in the digital environment. The result shows that even though technology surrounds the employees, they will prefer to share information in person, instead of using digital tools. It seems that the respondents do not always choose the most appropriate media to share digital information across the workplace (SCONUL, 2016). The results reveal that some of the respondents will often use social media channels to share digital information in the workplace (Goad, 2002; Chunke, 2007; Greenfield, 2014), increasing the risk of unauthorized distribution of digital information in the workplace. An explanation could be that employees now have better access to uncontrolled communication tools, or it may be a matter of age. However, e-mails are still frequently used for information sharing at work, but social media may prevail over controlled e-mail platforms.

Additionally, information is freely available in the digital environment. However, it does not mean that it can be freely used by the employees as it pleases them. It is critical that employees understand that there are copyrights and intellectual property rules, which must be respected and followed. Regularly, files and programs are downloaded illegally, and words are copied and pasted without giving proper accreditation to the author. Apparently, this is not quite what happens in the digital workplace. It seems that information is used and distributed ethically among the respondents. In fact, an employee should know how to ethically use and share digital material (Raman, 2004; Perdew, 2016). This is exactly what most organizations expect employees to do. However, this is not always the case, because not all employees follow copyrights and intellectual property rules in the digital workplace. One explanation could be that some respondents are unaware of the risks related to copyright violations; this may be due to the educational level differences between the respondents. In addition, it may be due to cultural differences. Moreover, it seems that the respondents understand the importance of appropriate behavior while taking part in online discussions, staying safe in the digital world (SCONUL, 2016).

Regardless, the organizations should have rules and regulations in place to reinforce the ethical use and distribution of digital material in the digital workplace. However, the empirical data show that not all the organizations have rules and regulations in place, and nor are all respondents warned about the rules when using digital content, leaving space for inappropriate distribution of information across the workplace.

Most of the respondents perceived IL as an important set of skills to have in the workplace. However, it seems that the way IL is perceived will depend much on context, thus some aspects being more relevant than others (Lloyd, 2010).

The promotion and support of IL in the digital workplace

There will be no house without a foundation, and no walls without pillars to hold them up. Likewise, there is no proper information management without the bases of information literacy and support to continue developing the skills needed to survive in the digital world. Lloyd (2010) suggests that the promotion of information literacy is relevant in the workplace and that the organizations should provide support to the

employees, so they can develop their information literacy skills further. However, Meyers, et al., (2013) added that before promoting information literacy in the workplace, the employees' skills should be assessed to determine in which areas the employee requires the most attention. After determining the skills that the employees need to develop, these skills should then be taught formally and informally to all employees (Hobbs, 2010; Meyers, et al., 2013). Additionally, context should be considered before offering any support or training related to IL skills for employees (Lloyd, 2010; Meyers, et al., 2013). However, the problem is that no one knows who should be responsible for the promotion of information literacy and for supporting the development of information literacy skills in the workplace (Fieldhouse & Nicholas, 2008). What makes the situation worse is the focus of most organizations on the adoption of new technology and development of the IT skills of their employees, while the development of IL skills is pushed aside (O'Sullivan, 2005; European Commission, 2016; Mitchell, 2017). However, the business owners and managers must understand that promotion of IL and support is necessary for the employees to fully develop their information management skills and capabilities.

It seems that most organizations support the management of information and offer enough possibilities for employees to develop their information management skills. However, this may not be the reality in all the organizations in the digital environment, as not all organizations include information management in their business strategy. Nevertheless, it may be beneficial for the organizations to have information management aligned with the business's strategy to be sure to cover future information management needs. However, the implementation of information management training should be based in each unique environment to ensure clear understanding among the employees (Lloyd, 2010). This is important, because each employee has a different area of expertise that requires attention. Unfortunately, not all organizations recognize the importance of having information management aligned with the business strategy, especially small businesses. Perhaps this is because the business owners do not have a clear view or enough understanding of the information management concept, as they often confuse it with the IT (O'Sullivan, 2005; European Commission, 2016; Mitchell, 2017). One explanation could be that information is more digitalized today, making technology the

center of attention of most organizations (O'Sullivan, 2005; European Commission, 2016; Mitchell, 2017). Regardless, the results indicate that some organizations may recognize the value of information management for the business strategy.

Furthermore, as employees from different work contexts have been studied, the employees' contextual knowledge may have influenced the way they perceive information management. In addition, the employees' work roles and tasks varied. Thus, this may help to explain the different ways of describing information management support. Therefore, Lloyd (2010) may be correct in arguing that context will influence how IL is perceived by employees in the workplace.

Additionally, organizations should focus on creating programs aimed at helping to improve the employees' ability to access, find, organize, analyze, evaluate, and create new information. In addition, they should concentrate on helping employees to properly use Internet resources, on the developing collaboration and problem-solving skills, on the ability to use technology and digital tools through transfer of knowledge, and on facilitating engagement in physical and virtual conversations to improve critical thinking skills (Hobbs, 2010). The results show that not all aspects of IL are well promoted or properly supported in the digital workplace, especially, in terms of facilitating access, location, management and proper distribution of information. In addition, the results indicate that the development of critical thinking skills is not always supported in the digital workplace.

10 Conclusion

The workplace as it was once known, has changed with the development of technology and the proliferation of digital information. In consequence, today employees have all sorts of electronic devices and systems to help them to manage digital resources more efficiently and effectively in the workplace. Additionally, employees have a variety of information available, which can be both an advantage and a disadvantage, depending on how employees manage this information. It is evident that technology alone is not enough to help the employees cope with these vast amounts of digital resources. Therefore, organizations need to make sure that employees possess the IL skills required for facilitating the proper management of information in the workplace.

Moreover, with information literacy skills, an employee will be able to search, organize, evaluate, use and distribute information successfully. However, the way in which an employee perceives IL can vary depending on the context, technology, and tasks that they perform at work. Therefore, organizations should be aware that some employees could have difficulties in managing information when entering a new work environment. Thus, this may challenge organizations to give more attention, not only to the development of IT skills but to the development of IL skills in the workplace, especially the employees' ability to search, organize and distribute digital information, as these are IL aspects that seem to receive little attention in the digital workplace. Regardless, the organizations that do not provide appropriate training and support to help employees in the development of required IL skills will find themselves with many employees unprepared to cope with the vast amounts of information in the digital era.

Furthermore, if the expansion of information continues, the employees will need to have enough critical thinking skills to make sense of context, analyze and evaluate information found on the Internet and to resolve problems and to make precise decisions in the workplace. For that reason, organizations should improve interaction and communication among employees to facilitate knowledge transfer and the development of critical thinking in the digital workplace. However, to achieve better results, organizations should strategically align information management with the business strategy, which may be the best action to take to ensure that the information management skills are supported

in the workplace. Nevertheless, if organizations continue to ignore the importance of IL skills development among employees, it will create disadvantages for the businesses attempting to compete in the digital environment.

The results of this study can be used to help business owners and managers gain a better understanding of the importance of promoting the development of IL skills among employees. Additionally, it may be used as a guide to show which aspects to focus on when developing IL training and support programs to help improve information management efficiency in the digital workplace.

10.1 Recommendation for future researches

Several questions arose during the literature review that would be interesting to study. For instance, it seems that language impact how the employees manage information. It would be interesting to investigate how language effects on the management of information in the digital workplace. There remains the question of who holds the responsibility to promote IL in the workplace, which would be interesting to study in the digital workplace context. Furthermore, it would be interesting to investigate what kinds of feelings the employees have when managing the vast quantities of data in the digital environment today, which was not possible in this study because of time constraints.

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Source: 1 SCONUL Seven Pillars model for information literacy 2011

Identify	Scope	Plan	Gather	Evaluate	Manage	Present
Understands:	**Understands:**	**Understands:**	**Understands:**	**Understands:**	**Understands:**	**Understands:**
•New information & data is constantly being produced & that there is always more to •Being information literate involves developing a learning habit so new information is being actively sought all the time •Ideas and opportunities are created by investigating / seeking information •Scale of the world of published and unpublished information and data	•What types of information are available •The characteristics of the different types of information source available to them & how they may be affected by format •The publication process in terms of why individuals publish & the currency of information •Issues of accessibility •What services are available to help & how to access them	•Range of searching techniques available •Differences between search tools •Why complex search strategies can make a difference to the breadth & depth of information found •Need to develop approaches to searching such that new tools are sought for each new question •Need to revise keywords & adapt strategies •Value of controlled vocabularies & taxonomies in searching	•How information & data is organised •How libraries provide access to resources •How digital technologies are providing collaborative tools to create & share information •Issue involved in collecting new data •Different elements of a citation •Use of abstracts •Need to keep up to date •Difference between free & paid for resources •Risks involved in operating in a virtual world •Importance of appraising & evaluating search results	•Information & data landscape or their learning / research context •Issues of quality, accuracy, relevance, bias, reputation & credibility relating to information & data sources •How information is evaluated & published, to help inform personal evaluation process •Importance of consistency in data collection •Importance of citation in their learning / research context	•Responsibility to be honest in all aspects of information handling & dissemination •Need to adopt appropriate data handling methods •Role play in helping others in information seeking & management •Need to keep systematic records •Importance of storing & sharing information/data ethically •Relevance of Freedom of Information to research activities •Need to curate and archive research data ethically •Importance of metadata •Role of professionals in advising with all aspects of info management	•Difference between summarising & synthesising •Different formats of writing / presentation styles •Data can be presented in different ways •Personal responsibility to store & share information & data •Personal responsibility to disseminate information & knowledge •How their work will be evaluated •Processes of publication •Concept of attribution •Individual can take an active part in creation of information through traditional publishing & digital technologies
Is able to:	**Is able to:**	**Is able to:**	**Is able to:**	**Is able to:**	**Is able to:**	**Is able to:**
•Identify a lack of knowledge in a subject area •Identify a search topic / question and define it using simple terminology •Identify current knowledge on a topic •Recognise a need for information and data to achieve a specific end and define limits to the information need •Use background information to underpin research •Take personal responsibility for an information search •Manage time effectively to complete a search	•"Know what you don't know" to identify any information gaps •Identify which types of information will best meet the need •Identify the available search tools, such as general and subject specific resources at different levels •Identify different formats in which information may be provided •Demonstrate the ability to use new tools as they become available	· Scope their search question clearly and in appropriate language · Define a search strategy by using appropriate keywords and concepts, defining and setting limits · Select the most appropriate search tools · Identify controlled vocabularies and taxonomies to aid in searching if appropriate · Identify appropriate search techniques to use as necessary · Identify specialist search tools appropriate to each individual information need	•Use a range of retrieval tools & resources effectively •Construct complex searches appropriate to different digital & print resources •Access full text information •Use appropriate search techniques to collect new data •Keep up to date with new information •Engage with their community to share information •Identify when the information need has not been met •Use online & print help & can find personal & expert help	•Distinguish between different information resources •Choose suitable material on their search topic •Assess the quality, accuracy, relevance, bias, reputation & credibility of the resources found •Assess the credibility of the data gathered •Read critically, identifying key concepts & arguments •Relate the information found to the original search strategy •Cortically appraise & evaluate own findings •Know when to stop	•Use bibliographic software if appropriate to manage information •Cite printed & electronic resources using suitable referencing styles •Create appropriately formatted bibliographies •Demonstrate awareness of issues relating to the rights of others including ethics, data protection, copyright, plagiarism & other intellectual property issues •Meet standards of conduct for academic integrity •Use appropriate data management software & techniques to manage data	•Use the information & data found to address original question •Summarise documents and reports verbally & in writing •Incorporate new information into context of existing knowledge •Analyse & present data appropriately •Synthesise & appraise new & complex information from different sources •Communicate effectively using appropriate writing styles in a variety of formats •Communicate effectively verbally •Select appropriate publications & dissemination outlets in which to publish •Develop a personal profile in the community using appropriate personal networks &

Appendix 2 The SCONUL 7 Pillars of Information Literacy though a Digital Literacy Lens

Source: 2 https://www.sconul.ac.uk/sites/default/files/documents/Digital_Lens.pdf

The SCONUL7 Pillars of Information Literacy through a Digital Literacy 'lens'

Identify	Scope	Plan	Gather	Evaluate	Manage	Present
Understands:	**Understands:**	**Understands:**	**Understands:**	**Understands:**	**Understands:**	**Understands:**
The concept of digital literacy within an educational setting **The Internet** is not regulated but content may be structured and regulated in a variety of ways depending on the requirements of the provider **Technology** is constantly evolving and the exploration and evaluation of new and emerging information systems is a lifelong process **The lifecycle** of digital content, including issues around provenance, sharing and long-term access and preservation **The benefits and limitations** of using different forms of digital content, tools and technologies to meet specific needs	**Issues** around copyright, IPR and CC licences in relation to the use and creation of digital material **The need** to address issues of accessibility relating to digital content **The characteristics** of different digital publication formats, the functionality available within software platforms and the benefits and limitations of these in relation to the task **The impact** of online collaboration and networking as a means of developing, exchanging and communicating information	**How to** search for digital content using appropriate tools and techniques **The differences** between search tools (operating within and between environments), recognising their benefits and limitations **The impact** of sharing digital content **How the use** of different online communication tools can extend reach and enable teamwork and collaboration **Where to** locate and publish digital content for formal publication purposes and for information exchange purposes, appreciating the differences between the two	**The range** of different forms of digital publication and media, the different audiences they are designed for and how they are organised **Issues around** the popularity of a resource versus its academic quality **How digital** technologies are providing collaborative tools to create and share knowledge and the implications this has on gathering specific information. **The risks** of operating in a virtual world and how they can be mitigated **The importance** of appraising and evaluating results of online searches	**The need to** make choices in the use of different technologies to meet specific needs **Issues of** quality, accuracy, relevance, credibility, format and accessibility relating to digital information **How to** assess the profile and visibility of digitally published information using analytic functionality and tools **The need to** be a critical user of digital technologies **The importance** of citation of digital resources in learning and research contexts	**The need** to handle, store and disseminate digital information and data in a responsible and ethical way **Issues** of plagiarism **The principles** of citing and referencing digital sources and formats to enable verification **The need** to keep systematic records of digital sources using relevant technology **How** technologies can be used to personalise individual and shared digital environments **How** security profiles can be used to manage levels of interaction	**The need** to select a communication approach suitable for the audience **Issues** around accessibility of digital information, formats and compatibility with accessibility software **The importance** of online security and privacy **How to** communicate appropriately online **The need** to consider the digital self and ones online presence **That new** technologies allow for information in new ways (blogs, wikis, open access)
Is able to:	**Is able to:**	**Is able to:**	**Is able to:**	**Is able to:**	**Is able to:**	**Is able to:**
Recognise the importance of skills in locating, creating managing and sharing information through a variety of digital forms **Identify** gaps relating to the use, application or development of digital environments and tools **Continuously assess** how the use of digital content and tools could enhance academic practice **Recognise** where digital solutions can meet a specific information task or need	**Identify** gaps in knowledge relating to digital tools or content **Identify** search tools for locating quality digital material **Assess** different digital formats and select those to meet current need **Use** new tools and technologies as they become available and evaluate them for suitability **Assess** how online collaboration can enhance academic practice	**Identify** appropriate online search techniques **Remotely access** external digital sources in order to extend opportunities for discovery **Assess** which form(s) of digital media best meets the criteria identified **Use different** online communication approaches to extend reach **Assign** meta-data tags to content to enable future discoverability	**Use a range** of digital retrieval tools and technology effectively **Access**, read and download digital information and data **Engage in** online collaboration and networking to access and share information	**Assess** the suitability of digital content for the intended audience **Assess** the quality, accuracy, relevance, credibility, format and accessibility of digital material **Read** online information critically, taking into account access restrictions **Maximise** discoverability of own digital material using indexing strategies	**Use** appropriate tools to organise digital content and data (social bookmarking, bibliographic software) **Cite and** reference electronic sources appropriately **Manage** digital resources effectively taking account of version control, file storage and record keeping issues **Personalise** the digital environment according to need	**Communicate** effectively in a digital environment, using appropriate tools, to meet audience needs, taking account of accessibility issues **Confidently use** the digital media appropriate for presentation **Develop** an online personal profile using appropriate networks and technologies **Stay** safe and, if necessary, private in the digital world **Select** appropriate publication and dissemination outlets to share information

Appendix 3 MASTER THESIS SURVEY QUESTIONNAIRE 2017

Information Literacy Perception among Employees and Support Available in the
Workplace
Åbo Akademi University 20I7

INTRODUCTION

Dear participants,

This study is part of the International Master's Degree Program in information and
Knowledge Management at Åbo Akademi University.

Moreover, I would like to thank you for taking some of your time to take part in this
study. Please note that your contribution is extremely important for the success of
this specific study.

The idea is to see how information Literacy (IL) is perceived among employees and
how organizations are supporting the development information literacy skills in the
digital workplace.

Information Literacy is defined as the ability to recognize when information is needed,
the ability to locate, evaluate, organize, distribute information using numerous digital
tools.

The survey is long, it has about 26 questions and several sub-questions. lt may take
you between
I5-25 minutes to complete it. Please try to answer all the questions, because if the
survey is left incomplete then it will have no value for the study.

The information provided by you will be confidentially handled and used only for
purpose of this study.

At the end of the survey you will be offered a chance to win a prize. The winner
will be selected based on the information provided on the last question related to
information management support in the workplace. Basically, the more information
you give, higher will be your chances of winning the prize.

This survey will only be available until the end of April, as I must have the final version
of my thesis by the end of May. Therefore, I kindly ask you to fill-in the survey as soon
as possible.

ln the following sections, you will be required to answer several questions related to
your background and information management at work.

Attention, the survey has a screening system to avoid information biases. By selecting "NO" on the first question, you will be disqualified to participate in this study. If this is the case, I would like to thank you in advance for your good intentions. I truly appreciate your support.

For questions related to the study, please do not hesitate to contact:

Adriano Almeida Rocha

E-mail: adriano.almeidarocha@abo.fi

1. SCREENING QUESTIONS

Are you required to search, evaluate, organize, distribute and create information using digital tools as part of your job?

○ Yes

○ No

_____

2. Background information

1. What is your gender?

   ○ Female   ○ Male

2. In what year you born?

   Click or tap to enter a date.

3. What is your country of birth?
   Click or tap here to enter text.

4. What is the highest level of education you have completed?

   Choose an item.

5. In which year was your highest level of education obtained?

   Click or tap to enter a date.

6. What is your job position in the organization?
   Click or tap here to enter text.

7. Approximately when did you start working in this job position?

   Click or tap to enter a date.

3. Information strategy search

8. When searching for information online at work...

Sub-questions (sq)		Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	I always have an idea in mind where to find the information I need to do my job	○	○	○	○	○	○	○
2	I find it very important to formulate questions before researching for information on a certain topic	○	○	○	○	○	○	○
3	I always ask what, where and how before starting searching for	○	○	○	○	○	○	○

	information	○	○	○	○	○	○	○
5	I carefully select the sources of information before initiating my search	○	○	○	○	○	○	○
6	I pay much attention on the keywords I use to search for information on a specific topic	○	○	○	○	○	○	○
7	I always pay attention to the difference of information quality between web page domains, such as com, net, Edu, ac and org	○	○	○	○	○	○	○
8	I often spend long hours looking for	○	○	○	○	○	○	○

	informatio n online							
9	I carefully plan my search strategy when searching for informatio n using my smartphon e and other mobile devices	○	○	○	○	○	○	○

9. Please, choose **THREE** of the most used source of information while you are at work.

☐ Books
☐ Academic Journal Articles
☐ Encyclopedia
☐ Website
☐ Newspapers
☐ Magazines
☐ Blogs
☐ Organization Reports
☐ From co-employees at work
☐ Friends on Social Media (Network)
☐ Videos on YouTube
☐ Radio
☐ Television
☐ Movies
☐ Music
☐ Images
☐ Wiki
☐ Online Forums

Other (please specify)

Click or tap here to enter text.

10. Please, now choose **THREE** information sources that you believe are the most reliable and offers the most accurate information

☐ Books
☐ Academic Journal Articles
☐ Encyclopedia
☐ Website
☐ Newspapers
☐ Magazines
☐ Blogs
☐ Organization Reports
☐ Co-employees
☐ Friends on Social Media (Network)
☐ Videos on YouTube
☐ Radio
☐ Television
☐ Movies
☐ Music
☐ Images
☐ Wiki
☐ Online Forums

Other (please specify)
Click or tap here to enter text.

_____

4. Accessing information

11. At work…

	Sub-questions (sq)	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	I often use google to access information I need at work	○	○	○	○	○	○	○

2	I always use the organization webpage to find the information I need at work	○	○	○	○	○	○	○
3	I use the organization intranet most of the times to access information	○	○	○	○	○	○	○
4	it is always complicated to access information through the organization's website	○	○	○	○	○	○	○
5	is important to know how to effectively access information at work.	○	○	○	○	○	○	○
6	information is often quite disorganized. There is no specific way to organize information at work	○	○	○	○	○	○	○
7	information on the organization webpage is quite organized and easy to access	○	○	○	○	○	○	○

8	I have limited access to information at work	◉	◉	◉	◉	◉	◉	◉
9	to have access to information I must ask several people for permission	◉	◉	◉	◉	◉	◉	◉
10	I have full access to the information I need at work	◉	◉	◉	◉	◉	◉	◉

---

5. Information vocabulary

12. At work…

	SUB-QUESTIONS (sq)	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	I am quite familiar with the vocabulary used by my co-employees to label information	◉	◉	◉	◉	◉	◉	◉
2	The words used to label information in the website or intranet is	◉	◉	◉	◉	◉	◉	◉

	quite diverse in each department. I cannot always understand them							
3	Language is often an issue. Sometimes words are wrongly spelled making it hard to locate information on the website or intranet	○	○	○	○	○	○	○
4	Even though we all share a common language, we still often have some issues with the definition and meaning of certain words	○	○	○	○	○	○	○

6. Information search techniques and tools

13. From the list below, please indicate **THREE** search techniques that was introduced to you at work.

    Please, add others if not available on the list.

☐ Boolean (OR, NOT, AND)

☐ Quotation marks "between phases"

☐ Word's' without the suffixes (s, ed, ly, ing...)

☐ Advanced searches filters to limit the search by date, language or document types (PDF, PPT, books, journal articles etc.)

☐ Search Customization

Use browser history to locate reviewed information

☐ Use bookmakers to save information

☐ Setting time limitation to look for information from certain sources

☐ Using different search engine to find the needed information. For instance, start with Google than change to Yahoo

☐ Searching using indexes

☐ Asking for information from experts on your network

☐ Observation of behavior

☐ Test theory or hypothesis

☐ None

Other (please specify)
Click or tap here to enter text.

14. Search techniques

		Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	It is very important to know how to use information searching techniques when searching for	○	○	○	○	○	○	○

	informatio n at work.						
2	I was shown how to use different informatio n search techniques when I started this job	○	○	○	○	○	○	○
3	I have learned informatio n search techniques from co-employees at work	○	○	○	○	○	○	○
4	I have learned informatio n search techniques from the internet	○	○	○	○	○	○	○
5	I have never used informatio n search techniques at work to find the informatio n I needed	○	○	○	○	○	○	○
	Informatio n search techniques are irrelevant for my job	○	○	○	○	○	○	○
6	I often type whatever that come in my	○	○	○	○	○	○	○

mind in a browser when I need information at work		

15. Please, choose all information search tools that are available for you in the workplace?

☐Bookmark
☐Ref-Works
☐Plagiarisms Checker
☐Search Engines
☐Subject Directories
☐Meta Search Tools
☐Social Media
☐Company's Intranet
☐None

Other (please specify)
Click or tap here to enter text.

_____

7. Information analyses and evaluation

16. Critically evaluating information

Sub-questions (sq)		Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	It is important to use critical-thinking when searching, analyzing and evaluating information online	○	○	○	○	○	○	○

2	It is important for the organizatio n to support the developme nt of critical-thinking among employees in the workplace	○	○	○	○	○	○	○
3	Group discussions are often arranged among employees at work so that different viewpoints of a topic can be shared	○	○	○	○	○	○	○
4	Culture, history and other contextual aspects impact how I interpret information	○	○	○	○	○	○	○
5	I find important to check the reliability and accuracy of the information I use at work	○	○	○	○	○	○	○

6	At work, I often spend a lot of time analyzing and evaluating information online before using it	◌	◌	◌	◌	◌	◌	◌
7	At work, it is common for me not to spend time analyzing and evaluating information I find online	◌	◌	◌	◌	◌	◌	◌

17. When analyzing information at work, it is important to ...

Sub-questions (sq)	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	look for biased and logic of the content	◌	◌	◌	◌	◌	◌	◌
2	compare with other information and look for their relationship	◌	◌	◌	◌	◌	◌	◌
3	look at the context of the topic	◌	◌	◌	◌	◌	◌	◌
4	determine if the informatio	◌	◌	◌	◌	◌	◌	◌

	n answer my question						
5	look for gaps in the information	○	○	○	○	○	○	○
6	compare to my existing knowledge	○	○	○	○	○	○	○

18. When evaluating content of webpages, documents, videos, figures. It is important...

Sub-questions (sq)		Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	look for the webpage content purpose	○	○	○	○	○	○	○
2	look for the webpage ownership or sponsorship	○	○	○	○	○	○	○
3	look for the creditability of the author	○	○	○	○	○	○	○
4	look for the way the content is organized	○	○	○	○	○	○	○
5	to look for the usefulness of the	○	○	○	○	○	○	○

	Sub-questions							
	information							
6	to look for the format of the content	○	○	○	○	○	○	○
7	to see if the links are suitable for the document	○	○	○	○	○	○	○
8	to look for the list of references	○	○	○	○	○	○	○
9	to check currency	○	○	○	○	○	○	○
10	to compare information from various sources	○	○	○	○	○	○	○

_____
_____

8. Mind break

Hey!
Now you have reached over half of the questions and after NINE more you have finished the survey. Please continue :-)

Thank you for the support

_____

9. Organizing information

19. Keeping information organized at work

Sub-questions (sq)	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	It is important	○	○	○	○	○	○	○

	to keep information organized at work for future access							
2	The organization offers the latest technology to facilitate the management of information at work	◌	◌	◌	◌	◌	◌	◌
3	It is always difficult to effectively organize information at work with the tools that are available	◌	◌	◌	◌	◌	◌	◌
4	It is difficult for me to keep information organized on multiple digital devices	◌	◌	◌	◌	◌	◌	◌
5	I can easily store and organize information on the organization intranet	◌	◌	◌	◌	◌	◌	◌
6	I randomly store all information from work on OneDrive,	◌	◌	◌	◌	◌	◌	◌

					Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
	Google Drive, iCloud							
7	It is hard for me to keep my e-mails organized	○	○	○	○	○	○	○
8	I never organize the instant messages I receive from my co-employees	○	○	○	○	○	○	○

10. Communicating information

20. Information format

	Sub-questions (sq)	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	It is important to have information in a format that I can understand at work	○	○	○	○	○	○	○
2	I often have problem with the way documents are formatted	○	○	○	○	○	○	○
3	I often receive digital documents	○	○	○	○	○	○	○

	Sub-questions	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
	that I cannot open on my computer							
4	I find it difficult sometimes to understand information that it is not in a familiar format	⊙	⊙	⊙	⊙	⊙	⊙	⊙
5	It is important to be able to understand information that come in different formats	⊙	⊙	⊙	⊙	⊙	⊙	⊙

21. At work…

	Sub-questions (sq)	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
1	I often share work information though social media	⊙	⊙	⊙	⊙	⊙	⊙	⊙
2	I often share work information through e-mail	⊙	⊙	⊙	⊙	⊙	⊙	⊙
3	I often share work information	⊙	⊙	⊙	⊙	⊙	⊙	⊙

#								
	though the intranet							
4	I often share work information though Dropbox, One-drive, Google drive, iCloud	○	○	○	○	○	○	○
5	I often share work information though instant Message	○	○	○	○	○	○	○
6	I often share work information through face-to-face meetings at work	○	○	○	○	○	○	○
7	I have difficulties in using different software to share information at work	○	○	○	○	○	○	○
8	It is important to be able to use different methods of expressing knowledge at work	○	○	○	○	○	○	○
9	At work, we receive training on how to use different communication tools to	○	○	○	○	○	○	○

	share ideas with others						
1 0	At work, we are often motivated to use different communicati on tools to express our ideas	○	○	○	○	○	○	○
1 1	I never share information at work	○	○	○	○	○	○	○

_____

11. Information overload

22. Please, indicate the **THREE** of the most recognizable feelings you have while searching for information

☐ Happy
☐ Optimistic
☐ Hopeful
☐ Anxious
☐ Stressed
☐ Burnout
☐ Confused
☐ Overwhelmed
☐ Depression
☐ Angry
☐ Isolated
☐ Excited
☐ Accomplished
☐ Surrendered
☐ Persistent

Other (please specify)
Click or tap here to enter text.

_____

12. Ethical use of information

23. At work…

1	Sub-questions (sq)	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
2	copyrights and intellectual property infringements are taken very seriously	○	○	○	○	○	○	○
3	I always copy and paste content from webpage and documents that I find online straight to reports and presentations	○	○	○	○	○	○	○
4	I often refer to the source of information when I use information from online documents	○	○	○	○	○	○	○
5	I have used images without citation on few presentations slides at work	○	○	○	○	○	○	○
6	I am often reminded about risk	○	○	○	○	○	○	○

	involved in branching copyrights and intellectual properties at work						
7	we have regulations and policies concerning the use, access and of information resources	○	○	○	○	○	○	○
8	information security in an important issue	○	○	○	○	○	○	○
9	it is important to respect copyrights and intellectual property	○	○	○	○	○	○	○
10	not much attention is given to copyrights and intellectual property.	○	○	○	○	○	○	○
11	it is important to ask permission to use information produced by others	○	○	○	○	○	○	○
12	it is important to ethically	○	○	○	○	○	○	○

	distribute information							
1 3	it is important to have a good behavior when participating in electronic group discussions	○	○	○	○	○	○	○

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13. Information handling support

24. ln your opinion. Does the organization support the handling of information in workplace?

   ○ Yes

   ○ No

25. Do you feel that you have enough possibilities to develop your information management skills at work?

   ○ Yes

   ○ No

26. Is information management part of the strategy in the organization you work for?

   ○ Yes

   ○ No

27. What kind of supports related to information management are available for you at work?

Click or tap here to enter text.

Enter you E-mail to have a chance to win a **prize** for your participation in the survey

Thank you for taking part in this study.

Please enter your E-mail bellow if you want to have a chance to win a JBL in-ear headphone T2I0. I will announce the winner via E-mail. And the prize will be send by mail to the winner on September 20I7

   E-mail:
   Click or tap here to enter text.