Digital Literacy

Author: Dr. Geetanjali Rana Kanwar

Assistant Librarian, University Library,

G.B. Pant University of Agriculture & Technology,

Pantnagar, Uttarakhand

Abstract: The research paper aims at developing the awareness of digital literacy. Digital Literacy develops good skills to deal with the appropriate digital tools and knowing variety types of digital tools which can be use in digital literacy among people. The integration of many applications of ICTs, including different software systems and technology tools into the educational process and their successful use changes the content, methods and forms of training. The acquisition of skills and competencies in the digital age presupposes a new way of thinking and the ability of the user to continuously adapt to the new literacy required by the new technologies.

Keywords: Blended learning, digital literacy, digital technology, digital services, ICT, digital skills, internet, technology tools

Introduction: The rising of the technologies, needs to be encouraged and ready to obtain lifelong knowledge and skills in the learning environment. The digital literacy has to go through long-term development and its current appearance is characterized by complexity and technology skills but also cognitive and attitudinal components of behavior. Digital literacy is not a new strategy for gaining the information and knowledge needed. The capability to use the technology to allow us to right to use the materials is a key aspect of digital literacy. The aspect of digital literacy is an internet. The internet is a no longer complementary tool but primary need in this era. Mastery of technology tools and digital skills becomes a barrier to entry and be a participation in online cultures and contexts. The digital forms of information and communication has delivering and transforming what it means to work, study, research, perhaps even to think using a technology. In education, students and teacher does not escape to this transformation, and comes up the need to people who need technologies tools and admit of computer's literacy is an important competency in the 21st century.

Limitations

1. Lack of research about applying digital literacy
2. There's no variety type of digital tools been exposed to the people
3. Less of teachers using digital literacy as a teaching and learning method.

OBJECTIVES

The aim of this paper is to develop the awareness on the digital literacy among people. To achieve this aim, we identify the sub-goals:

1. To determine the level of knowledge performance of people using digital literacy.
2. To determine the skills needed by the people to use digital tools.
3. To identify the type of digital literacy tools recommended for people

To access information, sharing information, in the different places, technologies has made people reduce their burden. Some of the traditional method and tools need to be changed to new ways by introducing them the digital literacy tools.

1. Knowledge performance
2. Digital Technology skills
3. Technology tools and creation of text

Digital literacy means being able to understand and use technology. It relates to the ability to find, use and create information online in a beneficial and useful way. Digital literacy also means knowing the limitations of technology and understanding the dangers and precautions that the use of technology requires. Digital literacy's include data literacy, information literacy, visual literacy, media literacy, and met literacy, as well as related capacities for assessing social and ethical issues in our digital world.

The Seven Elements of Digital Literacy

- Technical. The technical element consists of foundational digital skills, which includes powering on and off devices, accessing tools and applications from devices, using the mouse and touchpad, and troubleshooting. ...
- Civic.
- Communicative
- Collaborative.
- Computational Thinking
- Investigative
- Productive

The Eight Components of Digital Literacy

- creativity
- critical thinking and evaluation
- cultural and social understanding, collaboration
- find and select information
- effective communication
- e-safety, and
- functional skills (Hague & Payton, 2010, p. 19).

The different elements of digital capabilities are:

- **ICTProfiency**

  This element describes the ability to use technology-based tools such as apps and other software to do tasks more effectively. Learners are required to be able to choose different types of IT devices and *software* for various types of work based on their benefits and advantages.

- **Information data and media**

  This element expects the ability to interpret digital information for academic and professional objectives. A critical approach to assessing the origin, relevance, worth, and reliability of information. Students are also expected to comprehend copyright regulations and open alternatives.

- **Digital creation, problem solving, and innovation**

  Digital literacy is used as a tool to help students improve their ability to create digital works. The works developed are, at the very least, capable of responding to public problems and inquiries. In order to produce an innovation encapsulated in a digital concept.

- **Digital communication, collaboration, and participation**

  The ability to do digital communication, such as text-based forums, audio, digital design, and online video, gets easier with digital literacy. Good communication via digital media can foster collaboration and teamwork toward a common objective.

- **Digital learning and development**

  Digital media has become a very impressive tool to assist the educational process. Through good digital literacy, students' capacity to identify and use learning resources through digital media becomes easier. Learners can use individual or in-group learning applications, schedule their learning, record their learning process, and so on.

- **Digital identity and wellbeing**

  The last element of a digital skill is the ability to develop and build a positive project to build a digital reputation. Many digital media users refer to it as "*personal branding*" nowadays. It is envisaged that through this element, the ability to sustain health, safety, relationships, and life balance through digital knowledge.

LITERATURE REVIEW

The integration of many applications of ICTs, including different software systems and technology tools into the educational process and their successful use changes the content, methods and forms of training. The acquisition of skills and competencies in the digital age presupposes a new way of thinking and the ability of the user to continuously adapt to the new literacy required by the new technologies. Nowadays, ICTs have become a "key lever" for effective learning, and creative, innovative and responsible behavior in the new educational environment in the 21st century. Contemporary learning theory focuses on learning as an active process of constructing knowledge, which presupposes learning to be viewed as a personal understanding and meaning making. It is recognized that learners need to engage in cognitively complex tasks involving such activities as problem solving, critical thinking, collaboration and self-regulation. consist that from a pedagogical perspective ICT has made the construction of "knowledge" a viable approach of developing the creative ability of students. For learners it is very important not the transmission of facts and knowledge but formulating and acquiring significant skills and abilities to research, select information sources and build their own knowledge so they can be always updated giving an adequate answer to the labour market.

The term digital literacy was introduced in 1997 by Paul Gilster in his book Digital Literacy where the author offers its definition focussing on the ability to understand, appreciate and use the information in multiple formats that the computer can deliver. Gilster (1997) insists that one should not consider digital literacy simply as "a book about how to get around the Internet". Moreover, the ability to evaluate and interpret the information is essential. What matters is that through digital literacy one acquires basic thinking skills and core competences without which he could not orientate and perform tasks in an interactive environment.

It is necessary to have knowledge and skills in the field of digital technology to be able to use information effectively in its different forms (e-publications, online video, audio recordings, digital libraries, databases, etc.). Furthermore, students need to be able to work critically with the information resources that they find for the purposes of their learning activity and have the competencies to handle independently in resolving scientific issues in projects, studies, etc.

The Internet and new media communication technologies with their interactive and increasingly individualized digital services change people's habits and behavior, building new value models and vital cues. They are becoming an irreplaceable source of education and self-education and important tool for the development of new literacy. "No previous technology for literacy has been adopted by so many, in so many different places, in such a short period of time, with such profound consequences. No previous technology for literacy permits the immediate dissemination of even newer technologies of literacy to every person on the Internet by connecting it to a single link on a screen" (Coiro et al., 2008: 2-3). The Web is more than a simple information search and social contact feature,

The phenomena of digital literacy in modern era must be promoted and being spread towards the people from all ages. Thus, several aspects related to digital literacy need to be stress for the awareness of the digital literacy among people. Digital literacy has been defined and prepared in widely varying ways in knowledge searching purpose. Based on the research framework, there is three points need to be stress on to achieve my objective. Referring to the title itself "Awareness of digital literacy toward students", thus, students need to focus on the:

Knowledge performance

The development of information science makes the creation of a variety of data from various sources to be so easy. This added with the existence of information technology that helps an organization to function properly (Baharuddin, Izhar, Mohamad & Hasnol, 2016). In modern era nowadays, knowledge and information been transfer, gain and precise using digital literacy. Digital literacy helps the student to get the knowledge fast and easy by using the advanced technology. The knowledge could be sharing by socializing too not only in classroom method. Knowledge can be practice in anywhere and anytime, for example, improvement in the communication ways, grammar, and creativity by writing in the blogs. Other than that, by using some other social media like Facebook, it also can be one of the medium for digital literacy. By doing one account for teaching, teachers, lecturer or student itself, they can shared the knowledge, complete the assignment, and spread the news easy and fast. As we know, today's life is full of gadget and no one has left behind and we supposed to use it wisely.

Digital technology skills

Master in digital technology is a must in the 21st century. The advancement of technology for example computer and systems helps the student to improve the digital technology skills. For the genY, the skills to use the technologies are more compared to the genX. That will become a benefit for them. In digital literacy, students need to be talented and familiar with the system they might use. Students can develop their skill by going to the class of ICT of perhaps learning by themselves. As in the real life, kids also having they own Smartphone or tablet. But, many people didn't aware actually that is also the starting point which the skill can be developed. Other than that, communication skill and searching skill also can be improved. The students ccan improve their self to the organization.

Digital Literacy for Higher Education System

The adoption of digital technology by faculty members, librarians, technicians and other learning support specialists enable technology learning environment for students. The blended learning environment approach maintains high pedagogical standards in learning and research of students. The students engage themselves with digital enabled learning with elements of online and blended learning to have positive educational impact and results to entire satisfaction.
Blended learning, combines traditional face-to-face (F2F) approaches with online learning or technology-mediated modes.

With the focus in higher education on the importance of graduate attributes and the increasing number of teaching and learning activities being delivered via technology, online information literacy courses appear to be an effective way of delivering information literacy and information technology skills to students (Johnston, 2010, p. 208).

In 2006, "digital competence" was adopted by the European Parliament and Council as one of eight 'Key Competences for Lifelong Learning' (European Commission, n.d.), and was defined as "the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society" (Ferrari, 2012).
Digital literacy should be positioned as an entitlement for students that supports their full participation in a society in which social, cultural, political, and financial life are increasingly mediated by digital literacies (Spires & Bart-lett, 2012, p. 4).

E-learning refers to learning that occurs through computer-mediated opportunities, such as using computers or mobile phones, to access content made available online.E-learning is

widely employed in higher education, as well as in the more public domain, via a range of tools supporting digital learning, such as instructional videos produced by subject experts and members of the public. E-learning can span multiple online learning opportunities, of which the e-tutorial represents one form. An e-tutorial captures information about a particular topic visually and orally, providing in-struction in a brief session online, often interactively and/or incorporating multimedia elements, such as video, screen-casted instructions, and quizzes. Software products, such as Articulate, Camta-sia, and Captivate, support the development of e-tutorial content, enabling student access through institutional virtual learning environments (VLEs).

As Oliver and Herrington (2001) point out that

The learning environment needs to provide the learners with a raft of motivating and engaging tasks that cause the learner to make choices and decisions in the learning process, to reflect on what is being learned, to articulate and to share the new ideas and knowledge that is being acquired with others (p. 32).

Digital technology has become an integrated part of education (Benson and Kolsaker, 2015) and is changing the ways today's students learn (Coccoli et al., 2014). Digital technology includes a wide range of computing hardware and software, e.g. mobile devices, web tools, application software, communications and storage services, etc. (Mohammadyari and Singh, 2015; Ng, 2012). Students use digital technology for such learning activities as reading and sending email, accessing learning management systems, reading e-journals or ebooks, doing online quizzes, participating in discussion forums, and so on (Jones et al., 2010; Waycott et al.,2010).

Educational institutions are taking advantage of advances in digital technology to engage their students with various teaching and learning modes. One such mode is blended learning (Porter et al., 2014) which integrates technologies into the learning delivery process, and hopefully overcomes some limitations of face-to-face classroom learning (Akkoyunlu and Yılmaz-Soylu, 2008). Blended learning allows students to learn anytime, anywhere, and in the way they want to. Complementing face-to-face classroom teaching with online learning (Coccoli et al., 2014), blended learning has become popular among educational institutions.

The European Framework for Digital Literacy (EFDL), an outcome of the DigEuLit project and initiated to recognise the importance of digital literacy, defines digital literacy as follows:

Digital literacy is the awareness, attitude and ability of individuals to appropriately use digitaltools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digitalresources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process." (Martin, 2006, p.155)

To realize fully the benefits of technology in our education system and provide authentic learning experiences, educators need to use technology effectively in their practice. Digitally literate teachers and students should be able to carry out basic computer-based operations and access resources for everyday use. At the most basic level, a digitally literate person should be able to connect together a functional computer system for his/her own personal use, for example, a desktop to a printer. The ability to read manuals to conduct basic technical activities, or for troubleshooting, is part of being digitally literate. In addition to, or instead of reading manuals, digitally literate individuals are able to search for online resources that could assist with troubleshooting. Keying in the right questions in a search engine would enable the individual to

retrieve responses in the form of text, images and videos that will assist with solving the problem. An understanding of the use of, and the regular updating of antivirus software to avoid spam and viruses, is also part of digital literacy learning (Ng, 2012).

Teachers' digital competencies have become an essential aspect of training teachers to promote learning in their students that moves away from the knowledge transfer model and moves towards a talent development model (Touron, et. al., 2018).

Digital competence is determined by the European Union as one of the eight key competences for lifelong learning, which due to its versatility allows it to acquire other key skills (eg, mathematics, learning how to learn, creativity) and ensures active participation in society and economy (European Parliament and the Council, 2006: 15). This competence involves „the confident and critical use of Information Society Technology (IST) for work, leisure and communication".

The term digital literacy was introduced in 1997 by Paul Gilster in his book Digital Literacy where the author offers its definition focusing on the ability to understand, appreciate and use the information in multiple formats that the computer can deliver. Gilster (1997) insists that one should not consider digital literacy simply as "a book about how to get around the Internet".

Technology tools

Technology nowadays has implemented many tools which can apply for digital literacy. The skills are needed to use the tools appropriately. From the past research, the tool that has been used is iPads, iPods, Smartphone, Web 2.0, podcasting and much more. All those searching tools might help students to explore and making learning more attractive and fun. Many people never realize different technology used will give different benefits. For example, by using Google earth, the student can learn to build a good vocabulary and improve their writing sentences. Other than that, one of the methods for making class and learning fun is by digital storytelling. Based on the research, some teachers stated that student is extra active and feel free to understand learning with the digital tools. As teachers, practicing digital technology as a teaching tool will enhance student commitment and created learning engagement with students. Because of that, the performance of the students is increased rapidly. It supported by Baharuddin, Saad and Hasnol (2014) that working with teacher librarians is one of the factors would improve students' enjoyment of learning. It is important in order to attract students' interest to give full attention during lesson process in the class.

Improvement in Digital Literacy needs:

- Discovering and consuming digital content
- Creation
- Share and communicate
- Collaborate with colleagues
- Focus on curriculum
- Create modern classroom
- Digitalize materials
- Reviewing acceptable use policy
- Supporting educational program
- Enhancing online security

- Understanding digital responsibility
- Enhancing social opportunities
- Enhancing digital equality
- Supporting lifetime skills

Method: The questionnaire of seven sets of questions was asked and based on respondents answers tables were prepared. Table-1 is based on the first set of questions which was related to the computer literacy of students and their ability to: Work with computers to access to information; Use computer tools for word processing; Create and form documents; generate tables, pictures and images; Use Microsoft Excel, databases, etc; Create graphs and charts, create presentations and slideshows, knowing licensing etc.

S.No.	Activity	Percentage
1	Knowing what category of users are online	80
2	Online information use	100
3	Choosing right tool to find digital resources	63
4	Finding experts with contact details	75
5	Presenting self online with digital identity	52
6	Using online tools and websites for information	80
7	Knowing licensing and IPR acts for digital information utilization	60

Table-1- Computer and Online Literacy

Table-2 is based on the second set of questions was to understand the students' access to the Internet and the skills to use the Web and to participate in the Internet environment.

S.No.	Activity	Percentage
1	Knowing what information find on web	90
2	Knowing what information on online library	72
3	Using advanced search option to limit and refine search	67
4	Keywords use to search information online	88
5	Using social media	93
6	Filtration for large number of searches	46
7	Changing strategy and stop of searching	42
8	Scanning/ skimming a web page	74
9	Keeping up-to-date information from authorities or organization by subscribing Really Simple Syndication (RSS) feeds	58

Table-2-Searching Information through Internet Use

Table-3 is based on the third set of questions which was related to establishing the ability of students to search independently and find effectively the relevant information and information resources for specific tasks; knowing and using library information resources in the network; using appropriate search strategies in different information systems (e.g. Google ™, Yahoo ™, Yandex and other resources for finding information), etc.

S.No.	Activity	Percentage
1	Adding comments to blogs, forums or web pages for online communication	80
2	Writing online for different audience	70
3	Working with others online to create shared documents or presentation.	62
4	Using media capture devices, recording, editing or videos	77
5	Trustworthy and credibility of online information	64
6	Citing references and records with plagiarism check	51
7	Sharing legally and using social bookmarking to organize information	41
8	Satisfaction with information search	70

Table-3- Use of Different Information System

Table-4 is based on the fourth set of questions concerned with the students` skills for critical and reflexive attitude towards information and responsible use of information technology as a prerequisite for social adaptation and work in the digital society. It presented such students' competences as: evaluating, analyzing, synthesizing, using and interpreting information, deriving new knowledge from acquired information and understanding the economic, legal and social issues related to the ethical and legal use of information.

S.No.	Activity	Percentage
1	Participation in online courses	85
2	MOOC courses	78
3	Webinars	82
4	Trainings and workshops	91
5	Digital Teaching	82
6	Digital Assessment	90

Table-4- Skills for Digital Practice

Table-5 is based on the fifth set of questions aimed to show the motivation of students to improve their skills and competencies for using the Internet and digital technologies.

S.No.	Activity	Percentage
1	Using operating system to access information	98
2	Working with computers to access information	76
3	Using word processing MSExcel databases, etc.	68
4	Creating presentations and slide show presentations	70

Table-5- ICT skills

Table-6 is based on the sixth set of questions using internet and web pages and websites

| S.No.	Activity	Percentage
1	Using www	96
2	Using search tools to find and retrieve information	98
3	Identifying search results	78
4	Using e-mail	98
5	Creating and sending e-mails and working with attachments	92
6	Creating own web pages with text, images and hyperlinks	93

Table-6- Internet access skills

Table-7- is based on the seventh set of questions which is based on use of print media and digital technology.

S.No.	Activity	Percentage
1	Print media, newspapers, books, encyclopedias, etc.	82
2	E-media- e-newspapers, e-books, e-encyclopedias, etc.	64
3	Online videos	75
4	E-audio records	78
5	Online photo gallery	83
6	Virtual Museums	87
7	Digital Libraries	90

Table-7- Use of information resources

Results and Discussions

Table-1 shows that there are 100% online information users and 80% of users are categorized for their specific searches. There are 63% of users who choose right tool to find their information through digital resources. 52% of users use self identity to search online information. 80% of the users use online tools and websites for information search. 60% of the users know about licensing and IPR issues for utilization of digital information. Figure-1 illustrates the data of Table-1.
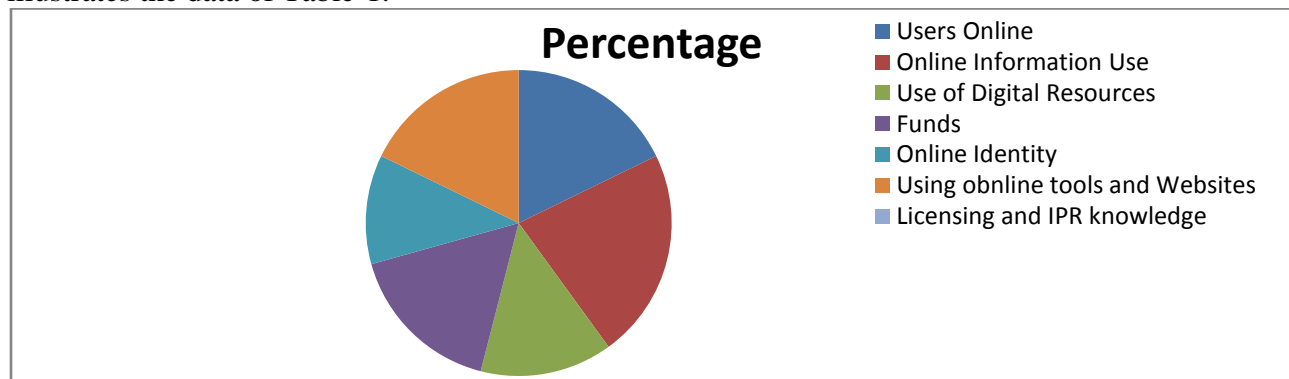

Figure-1- **Computer and Online Literacy**

Table-2 shows that 90% of the users find their required information on Web. About 72% of the users use online library. 67% of the users use advanced search option to limit and refine search. 88% of the users refine search by using keywords to limit the time. 93% of the users use social media. About 46% of the users know to filter large number of searches and only 42% of the users know to change strategy and stop searches. 74% of the users scan/ skim a webpage. 58% of users are alert to keep up-to-date information from authorities/ organization by subscribing RSS feeds. Figure-2 illustrates the data of Table-2
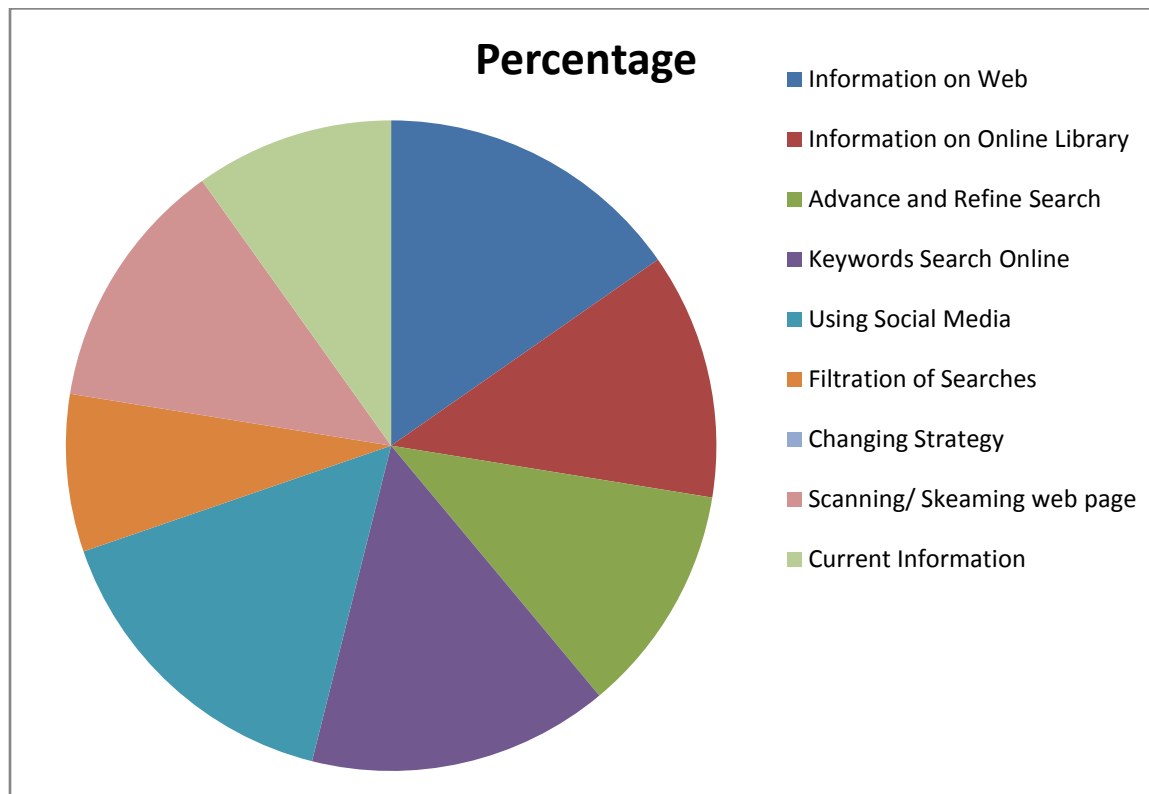
Figure-2- Searching Information through Internet Use

Table-3 shows that 80% of the users add comments to blogs, forums or web pages for online communication. 70% of users use online platform for different audiences. About 62% works online to create shared documents/ presentations. 77% of the users are using media capture devices, recording, editing or videos. 64% of the users trust the credibility of online information. 51% of the users use citing references and records with plagiarism check online. 41% of the users shared legally and use social bookmarking to organize information. About 70% of the users are satisfied with information online. Figure-3 illustrates the data of Table-3.
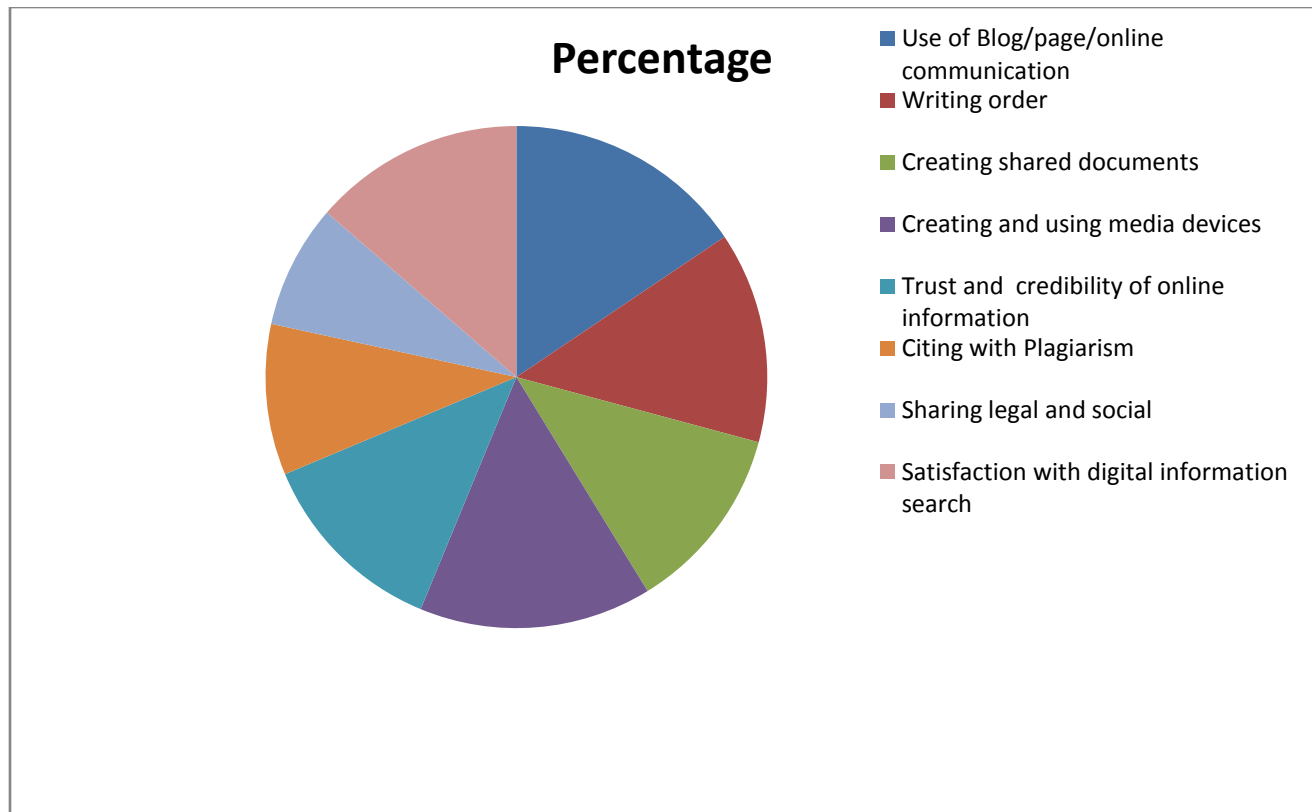
Figure-3- Use of Different Information System

Table-4 shows that 85% of the users participate in online courses. 78% of the users opt for MOOC course and 82% for webinars. 91% of the users engaged in trainings and workshops. 82% of the users prefer digital teaching and 90% of the users prefer digital assessment. Figure-4 illustrates data of Table-4.
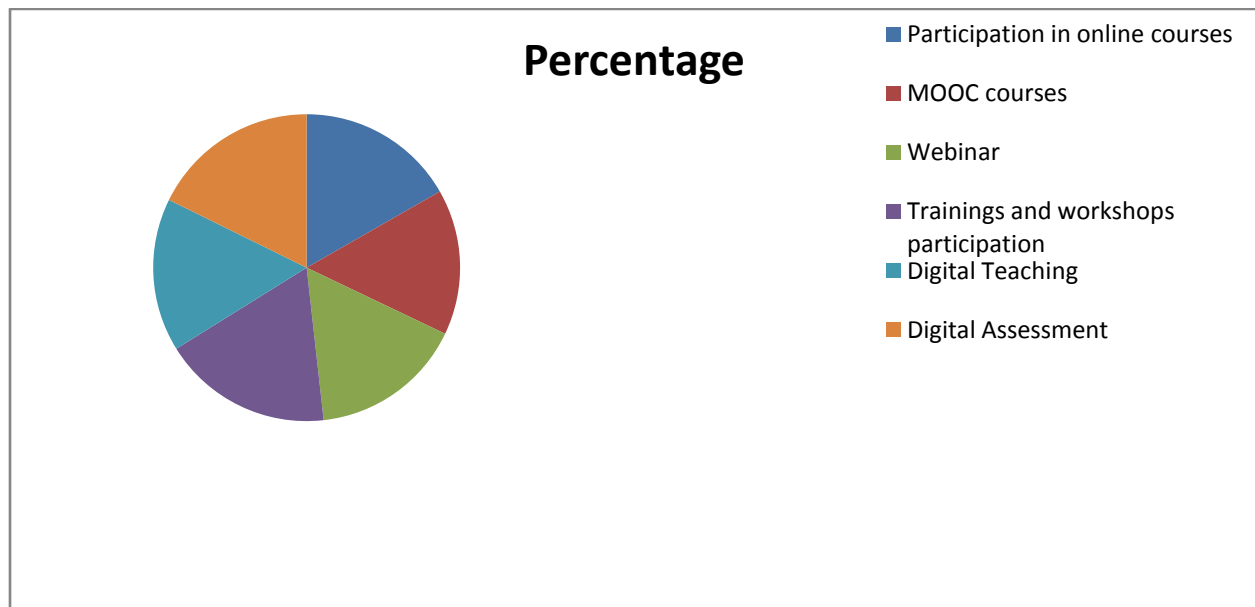

Figure-4- Skills for Digital Practice

Table-5 shows that 98% of the users use operating system to access information.76% of the users work with computers to access information. 68% use word processing, MS Excel, databases, etc. About 70% of the users create presentation and slide shows. Figure-5 illustrates data of Table-5.
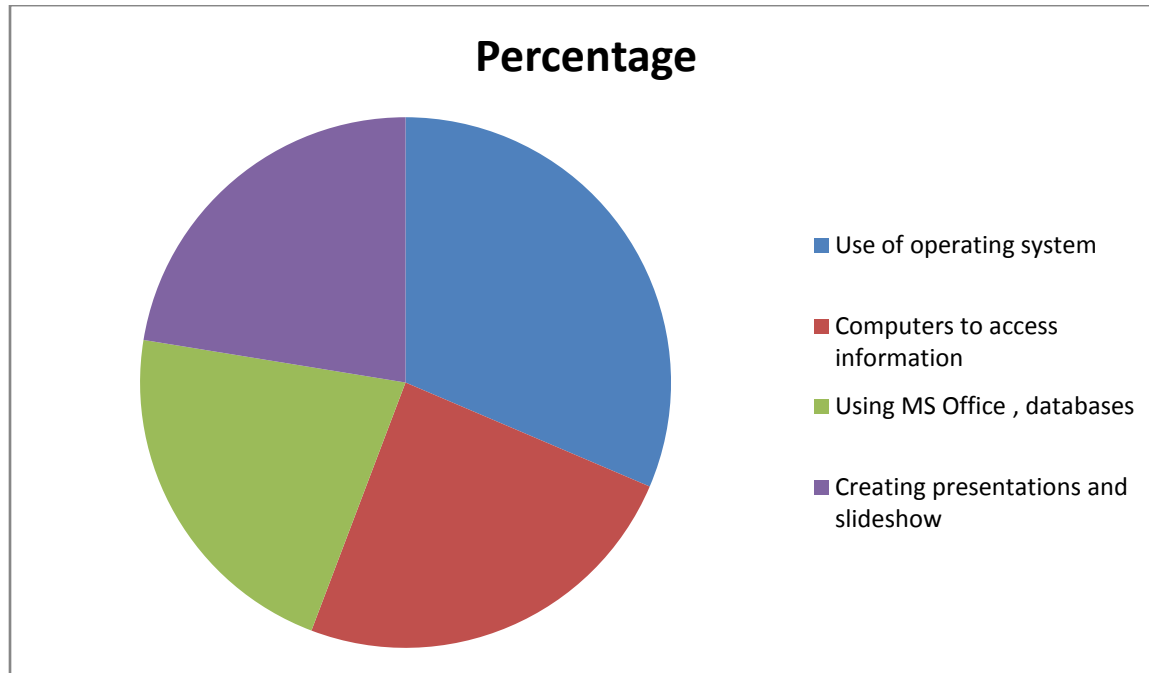

Figure-5- ICT skills

Table-6 shows that 96% of the users use World Wide Web. 98% use search tools to find and retrieve information. 78% use online resources to search and identify results. 98% of the users use E-mail services 92% users create/ send e-mails and working with attachments. About 93% of users create their own web pages with text, image and hyper links. Figure-6- illustrates data of Table-6.
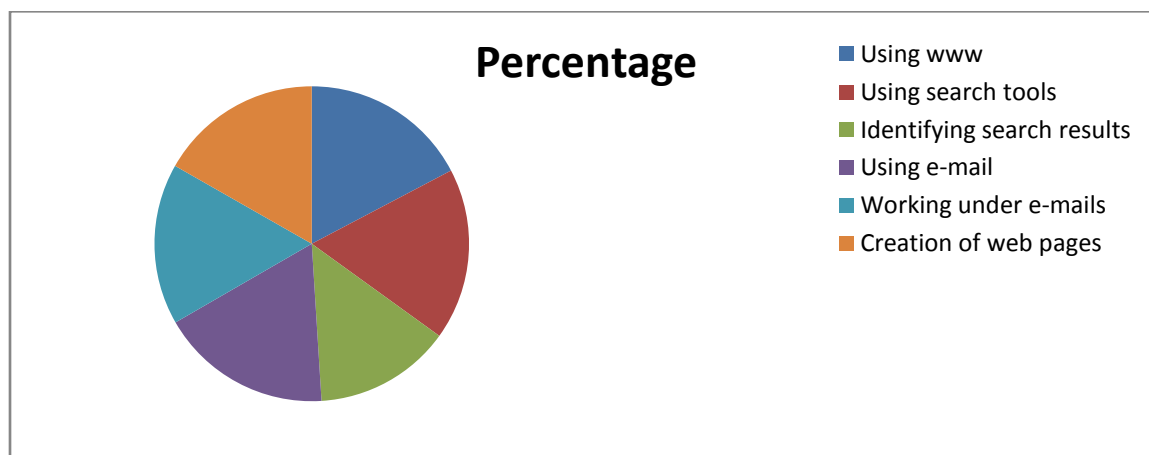
Figure-6- Internet access skills

Table-7 shows that 82% of the users use print media, newspapers, books, encyclopedia, etc. 64% of the users use E-media, E-newspapers, E-books, E-encyclopedias, etc. About 75% of the users use online videos. 78% of the users use E-audio records for required information. 83% of the users like to visit online gallery. 87% of the users like to visit virtual museums. About 90% of the users use digital libraries for seeking information. Figure-7 illustrates data of Table-7.
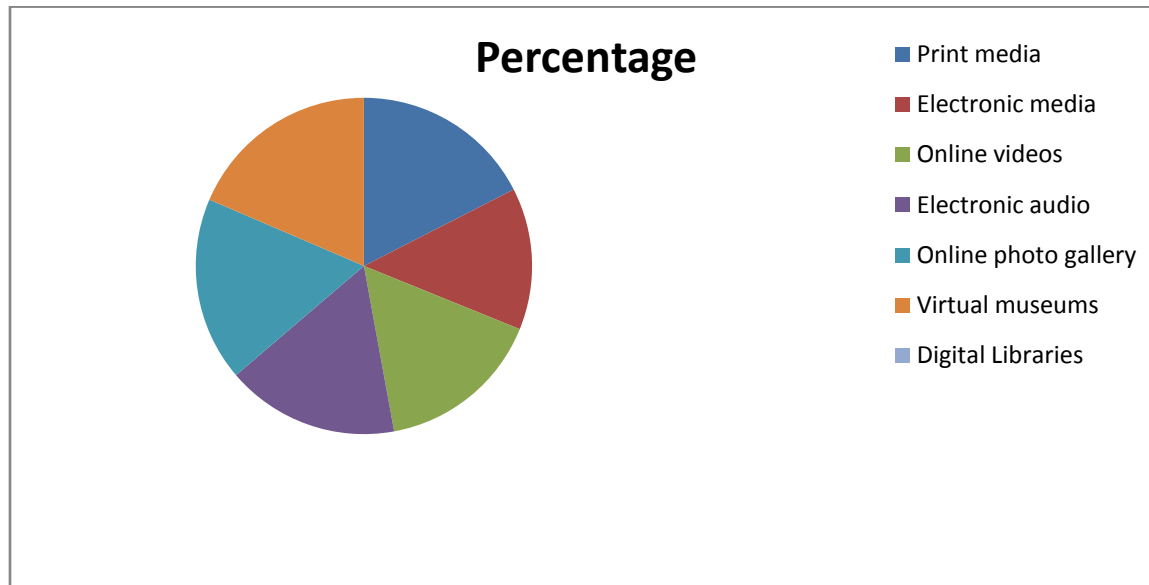
Figure-7- Use of information resources

CONCLUSIONS

Digital literacy prefers to use for students to apply in the real life for knowledge seeking purpose. Some ideas for classroom-nests are possible since it can be a good impact for the students and a good technologies tool provided. The online surfing, social media might increase the knowledge practice and build a good strength in terms of communication, delivering a good information and practicing a real information seeking method without boring. From the internet-based task, students can be more active because of the video, animation and sound provided. For example, students can learn the correct pronunciation and learn a new language through online. Moreover, Digital technology also provides good search engines which student can explore, like Google translator, wikis, online dictionaries and more. However, to fully utilize the digital literacy, the student must master the technology skills. Students must put an effort to explore the digital content sites to gain information for a specific purpose. Students need to know the right way to use the technology, such as skills of writing, knowing a little bit about the interface search engine, ways to use the systems and using the social media. Thus, this study has highlighted the on-going and growing concern for students to aware about the digital literacy which can less your burden for knowledge seeking approach and the new technologies learning method.

REFERENCES

Anon. (2017) Digital competence: the vital 21st-century skill [1]for teachers and students. Retrieved fromhttps://www.schooleducationgateway.eu/en/pub/resources/tutorials/digital-competence-the-vital-.htm

Anon. (n.d.) Digital Literacy. Retrieved from: [2]www.keyconet.eun.org/digital

Anon.(n.d.) Digital Literacy Retrived from:http://www.dea[3]kin.edu.au/__data/assets/pdf_file/0008/1237742/digital-literacy.pdf

Argentin, G., Gui, M., Pagani, L. & Stanca, L. (2014) The [4]Impact of Digital Literacy on Educational Outcomes: Evidence from Performance Tests. http://www.aiel.it/Old/bacheca/Pisa/papers/pagani.pdf

Chang, W.W. M. (2016) Digital Competence and [5]Professional Development of Vocational Education and Training Teachers in Queensland. Retrieved from: https://eprints.qut.edu.au/95088/1/Wei-Wei_Chang_Thesis.pdf

De la Cruz, J.L. (2016) The Research Capability of Ilocos [6]Sur Polytechnic State College: A Basis for A Capability Enhancement Program. International Journal of Management and Social Sciences Research (IJMSSR) ISSN: 2319-4421 Volume 5, No. 7, July 2016.http://www.irjcjournals.org/ijmssr/July2016/6.pdf

European Commission (2019) DiGiComEdu. Retrieved [7]from https://ec.europa.eu/jrc/en/digcompedu

Holmstrom, T. & Siljebo, J. (2013) Developing digital [8]competence or exploring teaching with digital technologies? An organizational study of municipalities' development of upper secondary school students' digital competence.

Instefjord, E. J. (2018) Professional Digital Competence in [9]Education. Retrieved from:https://brage.bibsys.no/xmlui/bitstream/hhttp://www.divaportal.org/smash/get/diva2:631946/FULLTEXT02andle/11250/2501440/Elen_J_Instefjord.pdf?sequence=1&isAllowed=y

Koyunco, M. (2011) The Impact of Digital Competence on [10]Academic Performance of Students. International Multidisciplinary Scientific GeoConference: SGEM: Surveying Geology & mining Ecology Management; Sofia Vol. 3: 1295-1299. Sofia: Surveying Geology & Mining Ecology Management (SGEM). (2011) Retrieved from https://search.proquest.com/openview/03bfc8bcf53b17b71b719b366ab1e6e8/1.pdf?pq-origsite=gscholar&cbl=1536338

Lynch, M. (2017). What is Digital Literacy? Retrieved from [11]https://www.thetechedvocate.org/what-is-digital-literacy/

Ng, W. (2012) Why digital literacy is important for science [12]teaching and learning? Curriculum and Leadership Journal Vol. 19 Issue 10. Retrieved fromhttp://www.curriculum.edu.au/leader/why_digital_literacy_is_important_for_science_teac,34913.html?issueID=12610

Shannon, S. (2017) Teacher Perceptions of Digital Literacy [13]in an L2 Classroom. Retrieved from:https://muep.mau.se/bitstream/handle/2043/23380/EnesThesis90%20BS.pdf?sequence=2

Shopova T. (2014) "Digital Literacy of Students and Its [14]Improvement at the University", Journal on Efficiency and Responsibility in Education and Science, Vol. 7, No. 2, pp. 26-32, online ISSN 1803-1617, printed ISSN 1803-1617, DOI: 10.7160/eriesj.2014.070201

Spante et al., Cogent Education (2018), 5: 1519143
[15]https://doi.org/10.1080/2331186X.2018.1519143

Bawden, D. (2008) *Digital Literacy.* SciTopics. December 29. Retrieved from http://www.scitopics.com/Digital_Literacy.html

Chai, C. and Lim, C. (2011) 'The Internet and teacher education: Traversing between the digitized world and schools', *Internet and Higher Education* 14, pp. 3–9.

Cartelli, A. (2010) 'Frameworks for Digital Competence Assessment: Proposals, Instruments, and Evaluation', *Proceedings of Informing Science & IT Education Conference (InSITE*), pp. 561-573.

Coiro, J., Knobel, M., Lankshear, C., & Leu, D. J. (2008) 'Central Issues in New Literacies and New Literacies Research', *Handbook of Research on New Literacies*. New York: Lawrence Erlbaum Associates, pp. 1-22.

Commission of the European Communities (2007) *E-skills for the 21st century: fostering competitiveness, growth and jobs*. European Commission, Brussels, 7.9.

Denchev, S. and Pavlova, I. (2009) 'Role of digital libraries in the university information environment', *Annual of "Informatics" Section*, Union of Scientists in Bulgaria, Volume 2, pp. 56-60.

Dreyfus, H. (2010) *On the Internet*. Sofia: Critique&Humanism Publishing House

Eco, U. (1996) *From Internet to Gutenberg*, November 12. Retrieved from http://www.umbertoeco.com/en/from-internet-to-gutenberg-1996.html

European Commission (2010) *A Digital Agenda for Europe (DAE*). Brussels, 19.05.2010, COM(2010) 245, Retrieved from http://eur-lex.europa.eu /LexUriServ/Lex Uri erv. Do ? uri = COM:2010:0245:FIN:EN:HTML

European Parliament and the Council (2006) 'Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning'. *Official Journal of the European Union*, L394/310.

Ferrari, A. (2012) *Digital Competence in Practice: An Analysis of Frameworks*, European Commission-JRC-IPTS, Luxembourg Publications Office of the European Union.

Gilster, P. (1997) *Digital Literacy*, New York: John Wiley & Sons.

Gomez Hernandez, J. A. (2010) 'University Libraries and the Development of Lecturers' and Students' Information Competencies', In: Information and Digital Competencies in Higher Education" [online monograph]. *Revista de Universidad y Sociedad del Conocimiento (RUSC)*. Vol. 7, No 2. UOC.

Goulao, M. and Fombona, J. (2012) 'Digital Literacy and adults learners' perception: The case of a second chance to University', *Procedia - Social and Behavioral Sciences* 46, pp. 350 – 355.

Henriksen, C. (2011) *Media and ICT in a Learning Perspective,* Accessed 24 November. Retrieved from http://www.dpu.dk/en/ research/researchprogrammes/mediaandict/

Horton, F. W. Jr (2008) *Understanding Information Literacy: A Primer*, Paris: UNESCO.

Huvila, I. (2012) *Information Services and Digital Literacy: In search of the boundaries of knowing* (Chandos Information Professional Series). Oxford.