Establishment and Arrangement of Digital Literacy package for Afghanistan

Fazlullah “Mamond”

Abdullah "Yousufzai"

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF BACHELOR IN (COMPUTER SCIENCE)
FACULTY OF COMPUTER SCIENCE
KABUL UNIVERSITY
2022

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Name of authors
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Member and Thesis Advisor
(Asst. Prof. Abdul Rahman Safi)

Abstract

As technology continues to develop, society has to adapt to new technological aids that allow for the acceleration, improvement, and optimization of everyday tasks, which makes it possible to acquire new knowledge in a more appropriate and dynamic way in society in order to facilitate the acquisition of new knowledge on a daily basis. In order to investigate this perspective from a field research point of view, there was a field study that was conducted involving the acquisition of information, which led to the discovery that technological devices are not used adequately within the fields of education, work and communication. Through data collection processing, it was learned that 80% of the citizens surveyed possess technological devices such as computers, tablets and smart phones and that 100% of the respondents use technological devices only for communication and social network review.

The study presented in this paper explore some aspects of digital literacy and its contents for a program that will help out people in Afghanistan to get literate digitally. As we can see by passing every day many organizations look to digitize learning and knowledge base materials, some employees struggle to integrate new technologies into their work routines, resulting in a repeat of paper-based resources. There is evidence to suggest that learning and reading retention is lower on digital workstation devices, such as desktop computers. Efforts to digitize learning and knowledge base resources in the workplace needs to be supported by a strategy that demonstrates the value of new technology to employee's experience, including ongoing digital literacy training and equipping employees with information technology resources that encourage the utilization of digital learning and reading materials.

Keywords: Digital literacy, MCIT, Technology, Department of technology and research, Kabul university, Directorate of digital skills.

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Firstly, I would like to express my sincere gratitude to my advisor Mustafa "Rahimi" for the continuous support of my Bachelor research, for his patience, motivation, and immense knowledge. His guidance helped me in all the time of writing of this thesis. I could not have imagined having a better advisor and mentor for my Bachelor research.

Besides my advisor, I would like to thank the rest of my thesis committee: for their insightful comments and encouragement, but also for the hard question which incented me to widen my research from various perspectives.

Finally, I must express my very profound gratitude to my dear mom, dear father to my partner Fazlullah" Mamond", my dear family and friends for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. Last but not the least, once again I would like to thank my family: my parents and to my brothers and sister for supporting me spiritually throughout writing this thesis and my life in general.

Abdullah "Yousufzai"

December 2022
Information Systems Department
Computer Science Faculty
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Fazlullah "Mamond"

December 2022
Information Systems Department
Computer Science Faculty
Kabul University

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Chapter 1

1.1 Research Problem

As we know Afghanistan is one of the least developed countries. Digital literacy has been affected more than any other aspect of development. Digital illiteracy affects employability, innovations, and development and it elevates the knowledge-equality gap. Afghanistan has been trying to move toward digital information like any other country in the last 2 decades and because of a big percentage of the illiterate population Afghanistan has been facing a lack of human resources with the right skills necessary for digital transformation.

The Department of digital skills development is a newly formed department in the Ministry of Telecommunications, whose main goal is to advance fundamental and comparative research in the related sectors of digitalization, digital economy, skills and digital literacy, and related matters. This general directorate has three directorates under it, which are the directorate of research and innovation, the directorate of digital economy, and the directorate of digital skills.

Digital literacy, like reading and writing literacy, means understanding and knowing how to use computers in daily tasks. Digital literacy is one of the departments of the relevant departments of the Directorate of digital skills development. Although a lot of work has been done in the field of digital literacy, especially in government departments, and there are digital education centers in the provinces.

The problem is that there is no formal digital literacy standard package and the available packages has least effectiveness in educating people. As requested, In the first stage of this research, we will study the available resources and contents, and as a result, in consultation with various departments, we will present the digital literacy package as software and in detail the parts of them that are necessary for digital literacy. we will prepare all the lessons in the form of text and videos (if possible at the time) for teaching and prepares them in a chapter-wise format and in a suitable format for online and printed books in one of the national languages to be used in classes. They should be used in face-to-face and online lessons. If necessary, we will cooperate with the candidate of the digital literacy package in case of lack of items contained above for the completion of the digital literacy package.

1.2 Importance of research

This research, which is related to the digital literacy and a standard package that can be used by everyone has a special importance for MCIT because in most countries digital literacy is used in its correct form and many people get benefits from it which has a direct and significant impact on the growth of the digital literacy in those countries. In Afghanistan, development of digital literacy is also prosperous, but there are a few approaches and places that are effective in this area. This research can express the impact of standard digital literacy packages on the digital literacy.

1.3 Research Scope

This study was conducted in Kabul University, Computer Science Faculty with the coordination of MCIT during the Bachelor year, 2022. The study will be completed over 4 months (1 semesters). In this study, researches done inside and outside of the country were collected which were done in the field of digital literacy. These researches are gathered after a feasibility study.

The Department of digital skills development is a newly formed department in the Ministry of Telecommunications, whose main goal is to advance fundamental and comparative research in the related sectors of digitalization, digital economy, skills and digital literacy, and related matters. This general directorate has three directorates under it, which are the directorate of research and innovation, the directorate of digital economy, and the directorate of digital skills.

Accordingly, after coordinating with the Department of digital skills development of the Ministry of Telecommunication and Technology, staff of computer science faculty in Kabul university were able to arrange and provide students some research titles required by the aforementioned Department. Students in final years can participate in it and choose one of these titles as their final project.

Chapter 2

2.1 Research Questions

In order to find the problems and solutions we are now facing in digital literacy we have to know that what people need to know. This will help us to easily propose the solutions. The main question in our thesis covers the main problem which our study wants to solve it.

1. Currently in Afghanistan, what kind of content should a digital literacy package have?
    - What has been done for improving digital literacy so far in Afghanistan?
    - What we can propose to improve digital literacy in Afghanistan?
    - How much the proposed way can affect the digital literacy?

2.2 Research goal

This research paper developed digital literacy package for people in Afghanistan who have a little knowledge of technology and its usage using mixed method research. The purpose was to identify the actual definition, factors, and contents of digital literacy in our society. The key informants were workers and heads of digital skills development of the Ministry of Telecommunication and Technology (MCIT). For this reason, the objective of this study proposed to arrange and determine a package under the name of Determination and Arrangement of digital Literacy package for Afghanistan, which will be used by the MCIT head office and directorates in provinces to literate people to use the technology in appropriate way.

This study will provide a package that can will help people in digital literacy and arrange content for it.

2.3 Research Methodology

Determination and Arrangement of the package that literate the people what they need to know about technology and digital literacy, need a lot of work to be done, thus we will split our work into 5 steps.

Step 1: We will start by collecting the researches done previously in country and outside of the country to make a content list that we will add to our package and acceptable for the MCIT. Collecting the contents will continue till the end of the study but at first, we will make the list that of main contents that needs to be in a digital literacy package.

Step 2: After making the list we will start the collecting information phases; in this phase we will collect information about the contents in the list to know how these contents can have impact on digital literacy.

Step 3: After completing steps 1 and 2 we will share the collected information about the possible contents to be included in the digital literacy package with the heads and directorates of the Department. We will present theses information via presentation held in the MCIT.

Step 4: After getting the confirmation and agreement from the heads and Department, the collected information can be used to develop the package and by developing the package the content will be shared with a committee assigned for the checking purpose.

Step 5: The last phase will be checking the package and a proposed way of sharing it with people. After proposing the solutions need some review, after a review this step will be complete.

Chapter 3

3.1 Digital Literacy

Literacy is means the art of teaching reading and writing. Nowadays, digital literacy is known as the process of getting information in order to use the resources and applications provided by technology properly. It is important to know that it is not only about using technological resources, but rather about taking advantage of all the benefits it offers us to make society more productive and efficient in the development of daily activities. According to UNESCO, education is increasingly present on the web establishing that digital literacy is very important for the development and performance of people in society, generating new opportunities. [1]

3.2 Digital illiteracy

Technology has developed significantly and today we are surrounded by technology at all times, from getting an appointment, to performing transactions from mobile devices, without having to move from our home. Even with all this progress we still find people who prefer to avoid the use of Information and Technologies, resisting the use of technological devices, they are called Digital Illiterates. Digital illiteracy means the lack of knowledge that people have about new technologies, generating as a consequence the unlimited use of it or in more extreme cases not being able to use it and interact with it. A person is considered digitally illiterate when he or she has limited access and/or low or no development of the skills to interact in the communicative network provided by the use of technology.

Generally, the digital illiterates correlate to older adults who do not have a mobile device or access to the Internet, performing all the activities in the old way, as it is known, in other words, they develop their daily activities as only they know it; this does not mean that only the population that is approximately in the third age is digital illiterate, there are also many people who do not have technological knowledge because they do not have access to technology. Not knowing how to use technology can create disadvantages in the development of daily activities, it can even diminish the possibility of acquiring a job, being replaced by people who constantly interact with technology. [2]

3.3 Digital Divide

Inequality means that people may have problems when having access to technology, both from the access to the technological devices or tools, as well as the understanding of the resources that are within our reach.
The process of technology appropriation consists of.
1) motivational access as an attraction to technology.
2) physical access or availability of resources.
3) access to digital literacy to acquire skills.
4) use regarding opportunities.
For now, we cannot say that the digital divide has disappeared, every day we see the most vulnerable citizens are afraid to use technological devices, this population does not have total access to digital resources, probably because of low economic resources or lack of knowledge in the use of them. [2]

3.4 Literature Review

In the 21st Century, with the advent of new technologies and the Web tools the demand for learning by individuals, society and education authorities has become extremely complex due to the fact that new technological skills and knowledge are required in technology-oriented workplaces. New literacies have evolved or have been re-defined for a life- long learning perspective The concept of digital literacy is dated back to 1960, and it has evolved with time due to the fact that the change in technology affected how the term was defined **(Kastis & Carneiro, 2009). [3]**
On the contrary, **(Cassidy & Knowlton, 1983)** and **(Suhor & Little, 1988)** argued that the term did not have enough explanatory power and was absurd hence from the 1970s, parallel to 'visual literacy', the term 'technological literacy' came into the picture. [4]
Technological literacy incorporated all the changes that were brought about by the technological innovations in the environment, therefore **Martin (2006)** defined 'technological literacy' as the ability to use the new technologies which were efficient and appropriate to produce information with new insights. In the 1980s, the term technological literacy was still popular with the growing use of computer-based and media technologies by people. [5]
Eyman (2007) also argued that 'technological literacy' was a broad term and there was no functional distinction between print-based literacy (reading, writing and communication information through print mediums such as magazines, newspapers, etc.) and digital literacy. [6]
There have been varied definitions of 'ICT literacy' as it meant differently to different groups, for example, The European Commission, defines 'ICT literacy' as 'learning to operate technology' without it including any 'higher-order skills' **(Coutinho, 2007). [7]**
To embrace the growing use of digital technology, a much broader term was needed to define this usage. With the growth in Web technologies and

access to digital technology and Internet, digital media was becoming the central aspect of the 'Net Generation' hence the most relevant term to describe this technological evolution was 'digital literacy'. Glister first used the term in 1997 who defined 'digital literacy' as the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers **(Glister, 1997)**. **[8]**

The European Commission defined digital literacy as the ability to use ICT and the Internet for creativity, innovation and entrepreneurship and acquiring the skills and knowledge necessary to live in the 21st Century. In 2006, Martin and Grudziecki developed three levels of digital competence. According to him**,** all the levels are linked to each other that is; if we look at the model, at the foundation is digital competence which include the skills, knowledge, attitude and awareness about digital technology. Then at level 2 is digital usage which is dependent on the digital competence or digital literacy of individuals. The individuals make use of the digital tools to create new knowledge, activity or innovation. This model fulfilled the requirements of digital literacy. **(Martin & Grudziecki, 2015)**. [9]

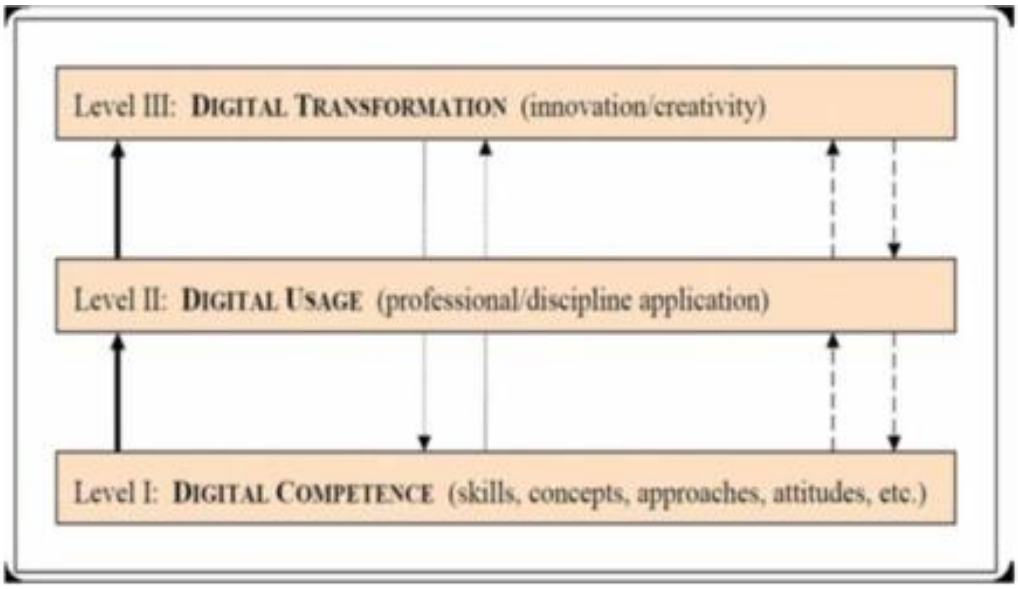


Figure 1: Martin and Grudziecki Model

According to **(Covello, 2010)** digital literacy is an umbrella for a number of complex and integrated sub-disciplines or "literacy's" such as 'Information Literacy', 'Computer Literacy', 'Media Literacy', 'Communication Literacy', 'Visual Literacy' and 'Technological Literacy'. Covello's work was used as a guideline for this study as his study had a similar setting to this study. The background for his research was an educational setting and educational testing service (ETS) was designed to measure digital literacy skills of the students'. However, this ETS was used to design various assessments which only focused on measuring the ICT skills of the students and did not consider other components of digital literacy. In this information age as new digital tools and technologies have evolved, Covello's definition of the six components lacked the necessary skills needed for an individual living in this age.

For the purpose of this study, his guideline of the six components of digital literacy has been redefined to include the necessary digital skills needed by an individual for this age. Also, these six components have been used to design a digital literacy scale that will measure students' digital literacy skills. The items of each of the six components have also been identified for this study and as this was missing in the study done by **Covello.** The definitions of the aforementioned literacy's have undergone transformation or expansion as innovation and research has redefined them. For this research, these six literacy disciplines are adopted and redefined as such:

1. **Information Literacy:** Using digital technology to find, locate, analyze and synthesis resources, evaluating the credibility of these resources appropriate citation techniques, abiding the legal and ethical issues surrounding the use of these resources and formulating research questions in an accurate, effective and efficient manner.

2. **Computer Literacy:** An understanding of how to use computers, digital technologies and their applications for practical use.

3. **Media Literacy:** Having the ability to use digital technologies to access, analyses, evaluate and communicate information in a variety of digital platforms.

4. **Communication Literacy:** Using digital technologies to communicate effectively as individuals and work collaboratively in groups, using publishing technologies, the Internet and Web 2.0 tools and technologies.

5. **Visual Literacy:** Having the ability to use digital technology to 'read,' interpret, and understand information presented in pictorial or graphic images communicate this information and convert the information into visual representations.

6. **Technological Literacy:** Having the ability to use digital technology to improve learning, productivity and performance. [10]

3.5 Digital Literacy in Afghanistan

Afghanistan ICT Policy vision says:
To enable Afghanistan Information and Communication Technologies (ICTs) by becoming part of the global information society while preserving Afghanistan's cultural heritage. To promote national goals to achieve a tolerant and vibrant Afghanistan, Afghanistan will use ICTs to expeditiously improve the Government sector, social services and foster

the rebuilding process, increase employment, create a vibrant private sector, reduce poverty and support underprivileged groups.

Afghanistan suffers from the digital divide: only a small percentage of the population has access to and use of information and communication technology, a factor that increasingly determines (and serves as a measurement of) economic success.

As in many other places in the developing world, growth of technology in Afghanistan has skipped over intermediate stages of infrastructure modernization to adopt contemporary innovations. The rapid construction of cell towers after 2002 has led to 90% mobile broadband coverage across the country. The World Bank and the Afghan government funded a 4810-km national fiber-optic backbone project that has connected more than 25 provincial capitals, several principal cities (including Kabul, Herat, Jalalabad, Kandahar and Mazar-e-Sharif), as well as linking Afghanistan to Iran, Pakistan, Tajikistan, Turkmenistan and Uzbekistan. The new infrastructure creates a direct digital path through the region, often called the "Digital Silk Road," and positions Afghanistan to become a Central Asian transit traffic hub. The region needs alternate and additional fiber routes to carry the vast amount of data currently traversing the globe. Having attracted private investment and established itself as the second largest tax revenue source for the Afghan government, the technology sector promises to be one of the driving forces behind Afghanistan's economic independence.

According to the Afghan Ministry of Communication and Information Technology, only about three million people, or 10% of the country, have access to the Internet. Despite the promise of the fiber optic infrastructure, about 75% of Afghans live beyond the reach of the new infrastructure in rural areas with little or no access to a reliable electricity supply. As of It's estimated that almost 8 million school-aged children need support to access education right now in Afghanistan where they might learn the language skills that would allow them to make use of connectivity. Many existing schools lack buildings and books, and few schools provide computer education. There are too few teachers, and as funding from the US Agency for International Development (USAID) shrinks or ends its grants in the region, many schools may no longer be able to pay teachers at all. Increased competition in the market has caused Internet prices to fall in recent years, but because the fiber optic backbone has yet to reach most of the country connectivity relies too heavily on expensive satellite based communications. Even though five mobile networks operate 5,835 base stations providing coverage to 90% of the country with increasing 3G and 4G mobile broadband service, most Afghans cannot afford smart phones or tablets.

According to the Afghan Ministry of Communication and Information Technology:

- There were 8.64 million internet users in Afghanistan in January 2021.
- The number of internet users in Afghanistan increased by 996 thousand (+13%) between 2020 and 2021.
- Internet penetration in Afghanistan stood at 22.0% in January 2021.
- There were 27.04 million mobile connections in Afghanistan in January 2021.
- The number of mobile connections in Afghanistan increased by 38 thousand (+0.1%) between January 2020 and January 2021.
- The number of mobile connections in Afghanistan in January 2021 was equivalent to 68.7% of the total population. [11]

3.6 Approaches to Digital Literacy

Since 2002 the World Bank, USAID, and the Afghan government have worked hard to lay the groundwork for an adequate national telecom infrastructure, which has allowed NGOs, private corporations, and the Afghan government to work toward connecting greater numbers of young Afghans to the rest of the world. Since 2003 scores of governmental and nongovernmental organizations have worked to improve the circumstances of people by promoting digital literacy. The vast majority of programs have sought to provide computers (existing technology) to schools and education centers.

Help the Afghan Children, a traditional nonprofit started by an Afghan-American woman, Suraya Sadeed, has established schools in Kabul, Laghman Province, Paghman District west of Kabul, Kandahar Province, and Kapisa Province. Since 2003, they have trained many youngsters in Windows, Microsoft Word, Microsoft Excel, PowerPoint and other forms of basic digital literacy. In a similar fashion, Fary Moini, an Iranian-American woman, helped raise money through the La Jolla Golden Triangle Rotary Club to start a school in Jalalabad. She also helped to establish a computer lab at the Nangarhar University in Jalalabad. Both of them have been successful in training thousands of girls and boys because their efforts included infrastructure and support. Global Partners, the Afghan School Project, Trust in Education, Aid Afghanistan for Education — too many organizations to enumerate — have worked hard to provide digital literacy in centers and schools for students of both genders.

Most of the challenges to digital literacy and education in general exist in the remote villages and areas of Afghanistan where the bulk of the population resides. When individual families or communities live at a distance from schools, children (particularly girls) stop attending. In some areas no schools are available at all. In partnership with the Afghan

government, UNICEF created the Community Based Education Initiative and the associated Accelerated Learning Centers, which provide education for students who were forced to drop out of school or never attended school in the first place. In response to the isolation of students and teachers in remote areas of Afghanistan, Program Manager for UNICEF Innovation in Afghanistan Richard Stanley introduced the EduTrac system. Students and teachers might not have access to computers and conventional land-based connectivity or be able to afford expensive 3G smart phones and tablet. The EduTrac system allows teachers to coordinate and share knowledge with each other, share data and needs with UNICEF, participate in educational group chat with students, and conduct surveys in order to provide important data and information so that organizations can best meet the needs of students.

Richard Stanley of UNICEF Innovation Labs in Afghanistan points to the work done by Paiwastoon CEO Mike Dawson with Ustad Mobile, a "learning platform for basic phones that tracks learners' progress so that any number of delivery platforms can be integrated." Paiwastoon specializes in creating software and communication innovations for Afghanistan. Ustad Mobil (developed with $80,000 in US aid) uses an interactive version of Afghanistan's national literacy curriculum and can be purchased online and all over the country at affordable prices. The program can run offline and then later sync with a cloud when the user has access to mobile service. In 2013 the program was distributed to 200 female police officers as a pilot to improve literacy in Dari and Pashto. Ustad programs include applications for other languages, including English, math, and statistical tracking programs that build on Richard Stanley's EduTrac. Most importantly, Ustad Mobile programs do not require smart phones or tablets but can be run on inexpensive cell phones already in widespread use across the country.

Chapter 4

4.1 Development So For

Study work starts by collecting the information about digital packages around the world and the research done in this area. We found the following list digital literacy components that can fulfill the requirements of the MCIT and its directorates.

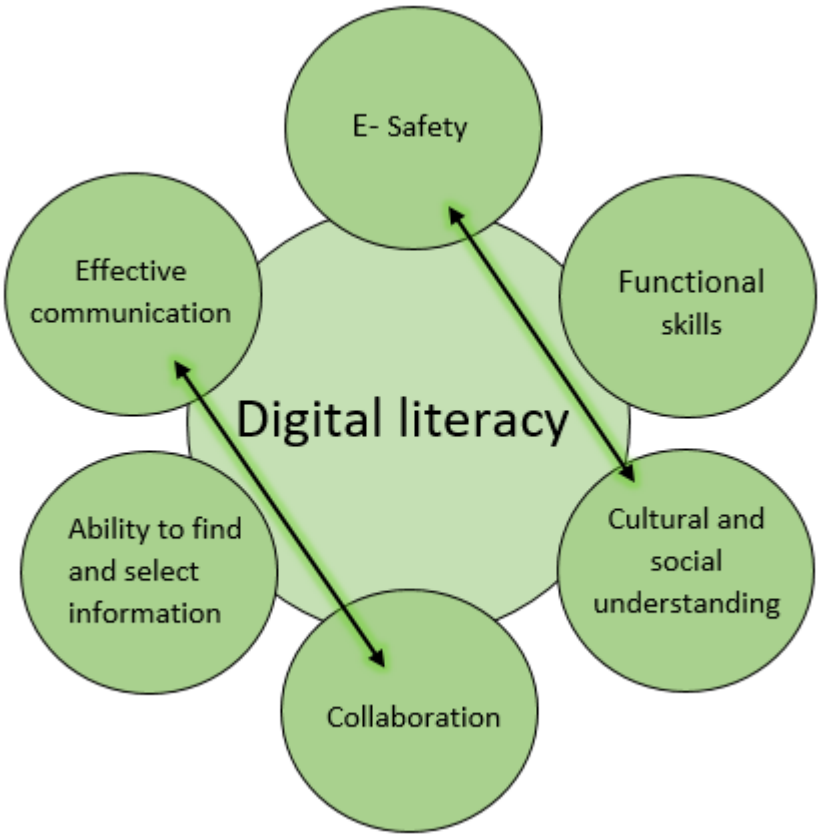
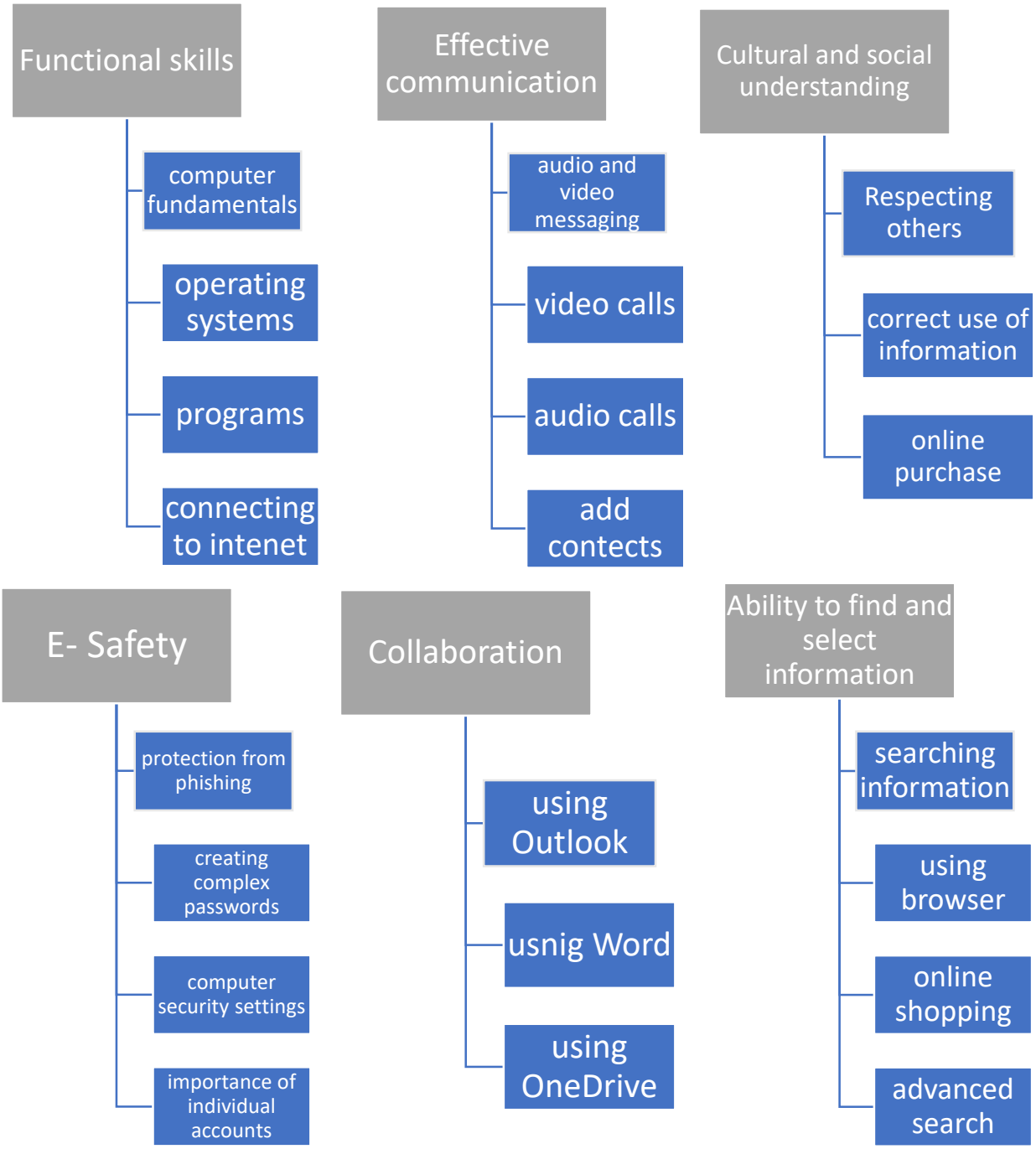


Figure 2: Proposed Model

These components are the essentials ones to make a person literate digitally. As an example we will elaborate each component and cause of including it in our package


Functional skills
computer fundamentals
operating systems
programs
connecting to intenet
Effective communication
audio and video messaging
video calls
audio calls
add contects
Cultural and social understanding
Respecting others
correct use of information
online purchase
E- Safety
protection from phishing
creating complex passwords
computer security settings
importance of individual accounts
Collaboration
using Outlook
usnig Word
using OneDrive
Ability to find and select information
searching information
using browser
online shopping
advanced search

4.2 Functional skills:

Functional skills are the base of
The Functional skills incorporates what we know of as computer literacy or IT skills with an understanding of the key concepts.it is about how to teach the functional skills required to operate each of the broad range of technologies that can be used in schools, there are some important general issues to consider when seeking to ensure that students have a broad range of digital literacies including the ability to operate various digital technologies

- Having the ability to use a range of devices, software platforms and interfaces.
- Knowing how to connect to internet.
- Having enough knowledge about essential programs.

4.3 Effective communication:

The Effective communication element is about as the name suggests, how to communicate in digital environments. Communication is central to our day to day lives as humans: it is the ability and desire to share thoughts, ideas and understanding. Being digitally literate means communicating effectively in a world in which much communication is mediated by digital technology. Over the past 20 years the prevalence of the mobile phone has brought opportunities for telephone conversations on the move, text messaging and picture messaging. The internet and Web 2.0technologies have provided new methods of communication such as email, instant messaging, social networking sites, forums, blogs and wiki.
Good communication involves an awareness of creating something for someone else, the ability to consider the needs of particular audience and to communicate potentially complex ideas with clarity and lucidity. It can involve choosing appropriate formats, tools and media and thinking about the specific affordances of those formats, tools and media and how they can be used to represent meaning
For example:

- Knowing the purpose of various online tools and how they are different or similar to each other.
- Being familiar with the communication norms and expectations of various online tools.
- Understanding what identity, sharing, influence and trust mean in digital spaces.

4.4 Cultural and social understanding:

The practices of literacy that facilitate the processes of making, understanding and
sharing meaning with digital technologies are always situated in broader contexts. People exist in cultures and networks and experience multiple interactions with others. Each act of digital literacy they engage in has Socio historical antecedents; it is an act of literacy because it is related to and supports these broader understandings, activities and interactions around the creation of meaning. Indeed, developing cultural and social understanding is essential in enabling people to participate not just socially and culturally but also politically, economically and intellectually. Cultural and social understanding equips students with a language and context for their digital literacy.

Understanding the culture (history, language, customs and values etc) of the internet and digital environments by:

- Knowing how to behave online; from netiquette to protection and privacy.
- Recognizing the difference between personal and professional use.
- Understanding how internet culture is expressed and transmitted through messages.
- Being able to seamlessly adjust to the different social environments of various applications.
- Understanding how online environments have changed the meaning of words such as expertise, publishing and sharing

4.5 E- safety:

Being safe online means that you have the knowledge to identify the potential risks and are conscious of your personal security while browsing, sharing or surfing the internet. E-safety is an important component of digital literacy. Supporting people to become competent, discerning users of technology is about helping them to develop the skills that allow them to critically question their own and others' technology use. Becoming digitally literate will enable people to make considered choices that will keep them safe when exploring, communicating, creating and collaborating with digital technologies, including the internet and mobile phones.

Some of the topics that you can cover with students are:

- protection from phishing
- creating complex passwords
- computer security settings
- importance of individual accounts

4.6 Collaboration:

The Collaboration element refers to individuals having the knowledge and ability to use digital environments to self-organize; to be part of a movement bigger than themselves. Learning involves dialogue, discussion and building on each other's ideas to create shared understandings. Digital literacy is also a social process of meaning-making that takes place with and in relation to others. Wiki sites are built to encourage collaborative creation of text allowing people to edit and update each other's writing to create a shared body of knowledge. Google provides Google Docs, an online web-based application that allows text based documents, spreadsheets and presentations to be uploaded, accessed from any computer with a connection to the internet and collaboratively edited. This would allow a group of students to work on the same document even if they weren't all in the same physical space at the same time. For example:

- Understanding one's digital rights and responsibilities.
- Participating in social movements.
- Preparing both ourselves and others to participate fully in society.

4.7 Ability to find and select information:

Another dimension of digital literacy relates to students' ability to find and select reliable and relevant information. This includes an awareness of where it is best to search for information and whether the internet, a book search, or another method might give the best results. This is an aspect of digital literacy that people often struggle with. When tasked with undertaking independent internet research many people are not equipped to find relevant information that they can understand. Often they simply find a website that seems to be related to their given task and copy and paste straight from the website into their work. This raises concerns over whether people have engaged with the content they have found and over issues of plagiarism. People need to be encouraged to think carefully about how to find information and use sources selectively to help them make an argument or carry out an activity. Developing digital literacy supports good research and study skills and vice versa. Being digitally literate means critically engaging with internet content and being able to judge the value of that information for a given task

- Knowing how to responsibly use and build upon someone else's work.
- Respecting copyright and understanding the concepts of remix and reuse.
- Being familiar with the various Creative Commons' licenses.
- searching information
- using browser
- online shopping
- advanced search.

After the research, suggestions and survey we come to decision to make content that will be used by MCIT to conduct achieve their goals.

4.8 List of contents

Basic requirements:
1- Basic knowledge of English language
2- The beginning of familiarity with computers and mobile phones
3- Full knowledge of national languages
Targets: Raising the level of digital literacy of students, educators, professors, employees and the general public

1- Functional skills

1.1- Computer basics
- 1.1.1- Familiarity with computer hardware
  - 1.1.1.1- Familiarity with computer hardware
    - 1.1.1.1.1- Keyboard
    - 1.1.1.1.2- Mouse
    - 1.1.1.1.3- Touch screen
    - 1.1.1.1.4- Microphone
    - 1.1.1.1.5- Skinner
    - 1.1.1.1.4- Webcam
    - 1.1.1.1.6- Biometric
  - 1.1.1.2- Process components
    - 1.1.1.2.1- CPU
    - 1.1.1.2.2- RAM
    - 1.1.1.2.3- ROM
    - 1.1.1.2.4- GPU
    - 1.1.1.2.5- Network Card
    - 1.1.1.2.6- Sound Card
    - 1.1.1.2.7- Video Card
  - 1.1.1.3- Output components
    - 1.1.1.3.1- screen
    - 1.1.1.3.2- Printer
    - 1.1.1.3.3- Headphone
    - 1.1.1.3.4- Loud speaker
    - 1.1.1.3.5- Projector
- 1.1.2- Familiarity with computer software
  - 1.1.2.1- System software
    - 1.1.2.1.1- Windows operating system
    - 1.1.2.1.2- Mac operating system
    - 1.1.2.1.3- Linux / Unix operating system
      - 1.1.2.1.3.1- Fedora
      - 1.1.2.1.3.2- Kali Linux
      - 1.1.2.1.3.3- Ubuntu
      - 1.1.2.1.3.4- Red Hat

1.1.2.1.3.5- Debian
1.1.2.1.4- Operating system of mobile phones
1.1.2.1.4.1- Android
1.1.2.1.4.2- IOS
1.1.2.1.4.3- Google OS
1.1.2.2- User software
1.1.2.2.1- Microsoft Office package
1.1.2.2.2- Communication software1.1.2.2.3- Collaboration software
1.1.2.2.4- Browser software
1.1.2.2.5- Educational software
1.1.2.2.6- Media software
1.1.2.3- Auxiliary software
1.1.2.3.1- Antivirus
1.1.2.3.2- Disk Cleanup
1.1.2.3.3- Disk Defragmenter
1.1.2.3.4- Backup

1.2- Operating system (Windows 10)
1.2.1- Installation
1.2.2- start
1.2.3- Introduction
1.2.4- Desktop
1.2.5- Taskbar
1.2.6- Task Switching
1.2.7- Search
1.2.8- Included Apps
1.2.9- Microsoft Store
1.2.10- Personalization
1.2.11- Magnifier
1.2.12- File Explorer
1.2.13- Keyboard shortcuts
1.2.14- Recommended Trouble Shooting

1.3- Administrative and office programs
1.3.1- MS Word program
1.3.2- MS Excel program
1.3.3- MS PowerPoint program
1.3.4- MS Access program

1.4- Connecting online
1.4.1- Getting to know the Internet
1.4.1- Connecting through the Internet
1.4.2- Connecting via Wi-Fi
1.4.3- Connecting through LAN

2- Effective communication

2.1- Text and voice messages
2.1.1- Email

2.1.1.1- Gmail
2.1.1.2- Yahoo
2.1.1.3- Mail
2.1.2- Social programs
2.1.2.1- WhatsApp application
2.1.2.2- Telegram program
2.1.2.3- Skype program
2.2- Video calls
2.2.1- Skype program
2.2.2- Zoom program
2.2.3- Google Meet program
2.2.4- Google Calendar program
2.3- Voice calls
2.3.1- WhatsApp application
2.3.2- Skype program
2.4- Add or delete contacts

3- Cultural and social understanding

3.1- Respecting others in social programs
3.1.1- Respecting the culture of others Social Media
3.1.2- Respecting the opinions of others Comments
3.1.3-Requesting the opinions of others with respect to Video Conferences
3.2- Proper use of information
3.2.1- Authentic sources of information
3.2.2- Types of information collection tools
3.2.3- How to use information
3.3- Cultural and social safety
3.3.1- Finding the source
3.3.2- Beware of plagiarism
3.3.3-Sexually stimulating websites
3.3.4-Dark web
3.3.5-Getting programs from reputable sites

4- Collaboration:

4.1- Using Outlook
4.2- Using Word online
4.3- Online use of Excel
4.4- Using OneDrive
4.5- Using Drobox
4.6- Using Google Drive
4.7- Using Slack

5- E-Safety

5.1- Protection against Phishing
5.2- Create closed passwords
5.3 Computer security settings
5.3.1- Windows Defender

5.3.2- Windows Firewall
5.3.3- Backup and Restore
5.3.4- Antivirus

6- Searching and finding information

6.1- Websites
6.1.1- Educational websites
6.1.2- Social pages
6.1.3- Wikipedia

6.2- Information search
6.2.1- Using various search engines
6.2.2- Use of keywords
6.2.3- Simplifying search terms
6.2.4- Use of quotation mark
6.2.5- Removing extra words

6.3- Working with Browsers
6.3.1- Google Chrome
6.3.2- Microsoft Edge
6.3.3- Opera
6.3.4- Safari

6.4- Advanced search

Why we include these subtopics to our package?

Computer fundamentals:

- Identifying computer components such as the processor, keyboard, mouse, monitor, speakers and printer.
- Being able to use a mouse to select, drag and click objects on the screen.
- Associating computer components with their function.
- Performing basic hardware functions such as using a scanner, printer and connecting to the internet.
- Identifying and using computer files and software.
- Mastering the use of windows, including minimizing, maximizing, restoring, resizing and using the scroll bar.
- Being able to select and use basic task-appropriate software.

Operating system:

An operating system is the most important software that runs on a computer. It manages the computer's memory and processes, as well as all of its software and hardware. It also allows you to communicate with the computer without knowing how to speak the computer's language.

We need to study operating system for the following reasons:

- It is an important part of our syllabus so there is no option to leave it.
- Knowledge of OS will be very useful if you want to pursue career in CS. In such case, you can find yourself in situations where the problem will be closely tight with the operating system/box you will be using.
- It will form a good base and help us to understand other CS subjects like software engineering, DBMS, etc.

- It is essential to study OS for placement preparation as it is asked in almost all technical interviews. Also tech companies ask MCQs on operating system in written test.

Administrative and office programs:

The skills you will learn in administrative and office programs are valuable in three key ways:

- they will help you enter the work force in a well-paid and respected position.
- they will help you to stand out from coworkers who have not received administrative office training.
- they will help you excel in whatever kind of work you ultimately take on throughout the course of your entire career.

Connecting online:

Internet is one of the greatest creations and provides people with instant access to an endless supply of knowledge and entertainment. Below is a complete list of all of the advantages of the Internet.

By connecting to internet you can:

- Information, knowledge, and learning. ...
- Connectivity, communication, and sharing. ...
- Anonymity and making people equal. ...
- Address, mapping, and contact information. ...
- Banking, bills, and shopping. ...
- Selling and making money. ...
- Collaboration, work from home, and access to a global workforce

Communication ways:

Communication helps you learn more about the other person and move your relationship forward successfully. Communication is important to share feelings, emotions, and thoughts about everything with the other person. You need to communicate if you want to get to know someone better.

By acknowledging it ways you can learn:

- Basis of Co-ordination
- Fluent Working
- The Basis of Decision Making.
- Management Efficiency
- Cooperation and Organizational Peace.
- Increase Morale of the Employees

Communication laws:

Effective communication ensures everyone is aware of what is expected of them and what action they need to take. You cannot underestimate how important trust is in the communication. Communicating effectively with your means you build greater trust in your abilities as a user.

Collaborating with others:

Online collaboration means using the internet and online tools to collaborate. Instead of sitting in a physical office space, online collaboration allows employees to collaborate from different locations and devices by accessing virtual work environments and shared online workspaces and we use it because collaborating with other people in person is

- much more difficult.
- not fashionable anymore.
- much easier than in internet.

Stay safe on internet:

By practicing Online Safety, we can prevent and mitigate the risks that are inherently involved with using digital technologies, platforms and services. Once the risks are managed, the internet can be enjoyed free from harm and to enormous benefit.

- Verifying someone's identity
- Verifying a link is safe
- Identifying an online scam
- Protecting privacy
- Creating and using passwords
- Identifying cyberbullying
- Becoming a good digital citizen

Searching information and using it:

It allows you to better understand things, to better seek information, to make better decisions about where you want to shop or eat. It enhances your life." This shift in focus from gathering information to processing and applying it means that search is more than just useful, it's transformative. Everything is depended heavily on computer technology and its connection to the World Wide Web to access vast amounts of information, to conduct research, and to communicate quickly with other business and customers. Understanding how to access and use that information is vital to both small and large business.

Here you will learn:

- Identifying and understanding web browser basics.
- Conducting searches in the web.
- Searching for images.
- Understanding a variety of tools to modify and narrow searches.

4.9 Proposed curriculum:

Module # and Topics	Module Subtopics	Module Learning Objectives

Module 1:
Functional skills
	• Computer basics
	• Familiarity with computer hardware
	• Input components
	• Keyboard
	• Mouse
	• Touch screen
	• Microphone
	• Skinner
	• Webcam
	• Biometric
	• Process components
	  ○ CPU
	  ○ RAM
	  ○ ROM
	  ○ GPU
	  ○ Network Card
	  ○ Sound Card
	  ○ Video Card
	• Output components
	  ○ screen
	  ○ Printer
	  ○ Headphone
	  ○ Loud speaker
	  ○ Projector
	• Familiarity with computer software
	• System software
	• Windows operating system
	• Mac operating system
	• Linux / Unix operating system
	  ○ Fedora
	  ○ Kali Linux
	  ○ Ubuntu
	  ○ Red Hat
	  ○ Debian
	• operating system of mobile phones
	  ○ Android
	  ○ IOS
		• Define the history of computers
		• Define the ways processors works
		• Differentiate between various computer peripherals
		• Recognize the fundamentals of the main computer box
		• Identify the components of computer memory
		• Define the inputs
		• Define the processors components
		• Define the output components
		• Define the Familiarity with computer software
		• Identify systems software and the operating system
		• List fundamentals of early operating systems
		• Define the System software
		• Define the operating system of mobile phones
		• Define the Communication software
		• Define the Collaboration software
		• Define the Browser software
		• Define the Media software
		• Usage of Microsoft office
		• How to use educational software.
		• Define the Auxiliary software

	○ Google OS ○ User software • Microsoft Office package • Communication software • Collaboration software • Browser software • Educational software • Media software • Auxiliary software • Antivirus • Disk Cleanup • Disk Defragmenter • Backup • Operating system (Windows 10) • MS Word program • MS Excel program • MS PowerPoint program • MS Access program • Connecting online • Getting to know the Internet • Connecting through the Internet • Connecting via Wi-Fi • Connecting through LAN	• Define the Antiviruses • Define the Disk Cleanup • Define the Disk Defragmenter • Define the Backup • Connecting to internet • Connecting to internet through Wi-Fi. • Connecting to internet through LAN.
Module 2: **Effective communication**	• Text and voice messages ○ Email ○ Gmail ○ Yahoo ○ Mail • Social programs ○ WhatsApp ○ Telegram	• Communicating through various application and acknowledge their differences • Official usage of programs and get to know the formats of different situations

	○ Skype • Video calls ○ Skype ○ Zoom • Google Meet • Google Calendar • Voice calls ○ WhatsApp ○ Skype	

Module 3: **Cultural and social understanding**	• Respecting others in social programs ○ Respecting the culture of others Social Media ○ Respecting the opinions of others Comments ○ Requesting the opinions of others with respect to Video Conferences • Proper use of information ○ Authentic sources of information ○ Types of information collection tools ○ How to use information • Cultural and social safety • Finding the source • Beware of plagiarism • Sexual stimulating websites • Dark web • Getting programs from reputable sites	• Define how to respecting the culture of others Social Media and Respecting the opinions of others Comments • Define how to request the opinions of others with respect to Video Conferences • Negative effects of unethical websites • Stay safe from hackers
Module 4: **Collaboration:**	• Using Outlook • Using Word online • Online use of Excel • Using OneDrive • Using Dropbox • Using Google Drive • Using Slack	• Sending, accessing e-mail • Messages with attachments • Using internet to chat • Usage of OneDrive • Usage of Dropbox • Usage Google Drive

Module 5:
E-Safety
	• Protection against Phishing
	• Create closed passwords
	• Computer security settings
	  ○ Windows Defender
	  ○ Windows Firewall
	  ○ Backup and Restore
	  ○ Antivirus
		• Recall principles of cybercrimes
		• Identify how to make money online
		• Identify principles of ecommerce
		• Recognize principles of virtual communities
		• Recall fundamentals of online education
		• Recognize proper computing information
		• Recognize computer laws

Module 6:
Searching and finding information
	• Websites
	  ○ Educational websites
	  ○ Social pages
	  ○ Wikipedia
	• Information search
	  ○ Using various search engines
	  ○ Use of keywords
	  ○ Simplifying search terms
	  ○ Use of quotation mark
	  ○ Removing extra words
	• Working with Browsers
	  ○ Google Chrome
	  ○ Microsoft Edge
	  ○ Opera
	  ○ Safari
	• Advanced search
		• Define information
		• Recognize the history of searching
		• Recognize the fundamentals of searching
		• Recall methods for searching on the internet
		• Recognize how to use Google
		• Recognize how to use opera, safari, chrome.
		• Identify ways of searching for information on the google
		• Uniform Resource Locators (URLs) and Search Engines to access Information
		• download information from the internet
		• access copy and paste information from internet to a different Application
		e.g. Word Processing

Chapter 5

5.1 Conclusion

Digital literacy involves critically engaging with technology and developing a social awareness of how a number of factors including commercial agendas and cultural understandings can shape the ways in which technology is used to convey information and meaning. It means being able to communicate and represent knowledge in different contexts and to different audiences (for example, in visual,
audio or textual modes). This involves finding and selecting relevant information, critically evaluating and re-contextualizing knowledge and is underpinned by an understanding of the cultural and social contexts in which this takes place. Digital literacy gives people the ability to take advantage of the wealth of new and emerging opportunities associated with digital technologies whilst also remaining alert to the various challenges technology can present.
This study was done with coordinating of the Department of Research and Development of the Ministry of Telecommunication and Technology, staff of computer science faculty in Kabul university to developed digital literacy package for people in Afghanistan who have a little knowledge of technology and its usage using mixed method research. The purpose was to identify the actual definition, factors, and contents of digital literacy in our society. The key informants were workers and heads of Department of Research and Development of the Ministry of Telecommunication and Technology (MCIT).
Afghanistan ICT Policy vision says:
To enable Afghanistan Information and Communication Technologies (ICTs) by becoming part of the global information society while preserving Afghanistan's cultural heritage. To promote national goals to achieve a tolerant and vibrant Afghanistan, Afghanistan will use ICTs to expeditiously improve the Government sector, social services and foster the rebuilding process, increase employment, create a vibrant private sector, reduce poverty and support underprivileged groups.

In our study, we used the research previously done in this area and, the results of the study that was to which kind of content should a digital literacy package have been done. These results help us to know what characteristics it should have. The private sector, and the government should take what actions in order to make the society digitally literate.
Our study shows the proposed ways in the context of Afghanistan, proposing the solutions and how to come over this problem is also done. The solutions proposed ways is placed on the chapter 5.

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Syracuse University, School of Education/IDD & E IDE-712:
Analysis for Human Performance Technology Decisions Dr. Jing Lei, Professor

Declaration

This thesis is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The work was done under the guidance of Mustafa "Rahimi", at the Department of Research and Development of the Ministry of Telecommunication and Technology.

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Name(s) and Signature(s),

In my capacity as supervisor of the candidate's thesis, I certify that the above statements are true to the best of my knowledge.

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Mustafa "Rahimi" December 2022

(Head of Digital literacy development department)