Enhancing Digital Literacy of University Students Project

E-DigiLit

NEEDS ANALYSIS REPORT

May, 2020

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Chapter 1: Executive Summary

This report is the deliverable, prepared in the scope of The EU funded Erasmus+ Key Action 2 – The Strategic Partnership project entitled "Enhancing Digital Literacy of University Students Project", outlining the immediate needs of university students on digital literacy.

The need analysis report includes the results of questionnaire applied in the partner countries to identify the training needs of university students currently studying in many different departments at different grades in the partner countries.

University students, who are the target audience of our project, use digital technologies widely for socialization and entertainment. For this reason, most of them cannot follow the constantly evolving and changing technologies that will affect their education and work lives. Large gaps are observed among university students studying in the same department in terms of acquiring digital skills. Recognizing and utilizing digital technologies effectively and correctly facilitates the social, educational and professional lives of individuals and increases their success in life. In universities, many high-quality, social and scientific courses are offered, while systematic, comprehensive and effective tools to support the development of digital literacy skills of young people cannot be developed sufficiently. This situation leads to a serious skill gaps and mismatches among students studying in the same university, in the same department even in the same class. E-DigiLit aims to develop a curriculum to meet these needs. However it is a must to determine the needs of university students on digital literacy before developing this new curriculum. This Needs Analysis Report will be a strong base for curriculum preparation process. Therefore, the questionnaire for this needs analysis was designed to assess the knowledge and awareness of university students on the five dimension of DigComp Framework as listed below:

- **Information and Data Literacy Dimension**
- **Communication and Collaboration Dimension**
- **Digital Content (and Media) Creation Dimension**
- **Safety (And Well-Being) Dimension**
- **Problem Solving Dimension**

This analysis has been a study to shed light on partner universities and other private and public universities by prioritizing the educational needs of university students who will possibly get the new developed elective course in the scope of E-DigiLit project. With the aim of providing better educational opportunities for university students, E-DigiLit aims to frame the information necessary to raise the knowledge and skill of university students in four different countries namely; Turkey, Spain, England, and Croatia.

The report includes 6 chapters as described below:

Chapter 1 is the executive summary, providing information about the document along with a brief explanation about what the needs analysis refers.

Chapter 2 provides an introduction, including an overview of the general research methodology carried out in the study together with brief explanations about digital literacy education and its expected impacts on the future of education and further life experiences.

Chapter 3 discusses the questionnaire methodology together with followed interactions, preparation processes, and compilation of questions, translations and application of the questionnaires via the online tool “Google Forms”

Chapter 4 provides information related to the sampling in 4 partner organizations, which include Dokuz Eylül University (DEU), Coventry University (COVUNI), University of Zagreb (FOI), and Fundacion Universitaria San Antonio (UCAM). 881 university students from 4 partner institutions participated to the questionnaire voluntarily. Statistics for the participants’ personal information such as age, gender, year of study, name of university and department they study, being an international student or not, means of internet access and frequency of following online services will be handled in this section.

Chapter 5 provides the process of deeper data analysis, mark ups which code text responses into numerical form, grouping data, comparing countries, and data visualization.

Chapter 6 provides a conclusion, which discusses the most prominent needs revealed as a result of the analysis both in general and on the basis of each partner organization's sampling.

Needs Analysis

Needs Analysis addresses the following points:

- Identify the training needs of university students,
- Identify the choices on using online services,
- Identifying what the general learning outcomes of the new curriculum should be,
- Collecting necessary data to form a database for the preparation of curriculum, and educational materials of the new elective course on digital literacy.
- Determining the current awareness and knowledge level of university students in each partner countries.

Contents

Chapter 2: Introduction

Developments in information and communication technologies have affected every field as well as the field of education and have changed the learning environment rapidly. As the most fundamental value of the 21st century is knowledge, the production and sharing of knowledge has become compulsory. In the process of sharing information, the concept of literacy is important. Today's literacy, which is the result of rapid development of technology and different disciplines, is gathered under the title of digital literacy. Digital literacy is an umbrella concept for important skill clusters such as ICT literacy, technological literacy and information literacy. UNESCO's Information for All Programme (IFAP) defines the digital literacy as a life skill. Individuals with this literacy which is defined as the ability to survive in the digital age, are the individuals who quickly adapt and understand new technologies. In addition to critical thinking skills, digital literacy includes ethical norms and standards of behaviours, turn of phrase and propriety in online environments.

Individuals with digital literacy skills have the ability to use, access and produce the right information, and to use technology in the learning-teaching process. Digital literacy became one of the most important key competencies in the digital age as survival skill. Among the 8 key competences of European Union "Digital competency" comprises:

- Apply Technology Effectively: technology as a tool to research, organize, evaluate, and communicate information.
- Use digital technologies, communication/networking tools, and social media appropriately to access, manage, integrate, evaluate, and create information to function successfully in a given environment.
- Fundamental understanding of the ethical and legal issues surrounding the access and use of information technologies.

In other word, digital literacy is considered as the most important basic skill that an individual must have in this digital age. Individuals have to use their digital skills not only in their educational life or professional life, but also in their daily lives. Nowadays, far beyond smartphones, many digital innovations such as digital educational materials, smart homes, smart cities, smart cars, e-government applications, the Internet of objects, etc. have become a part of our life. It's not a day since we don't add a new application to the mobile phones we use. Moreover, we have been able to communicate through digital technologies and social media. The number of people using digital technologies for access to information, banking and shopping is increasing rapidly, rather than going to the library, market or bank.

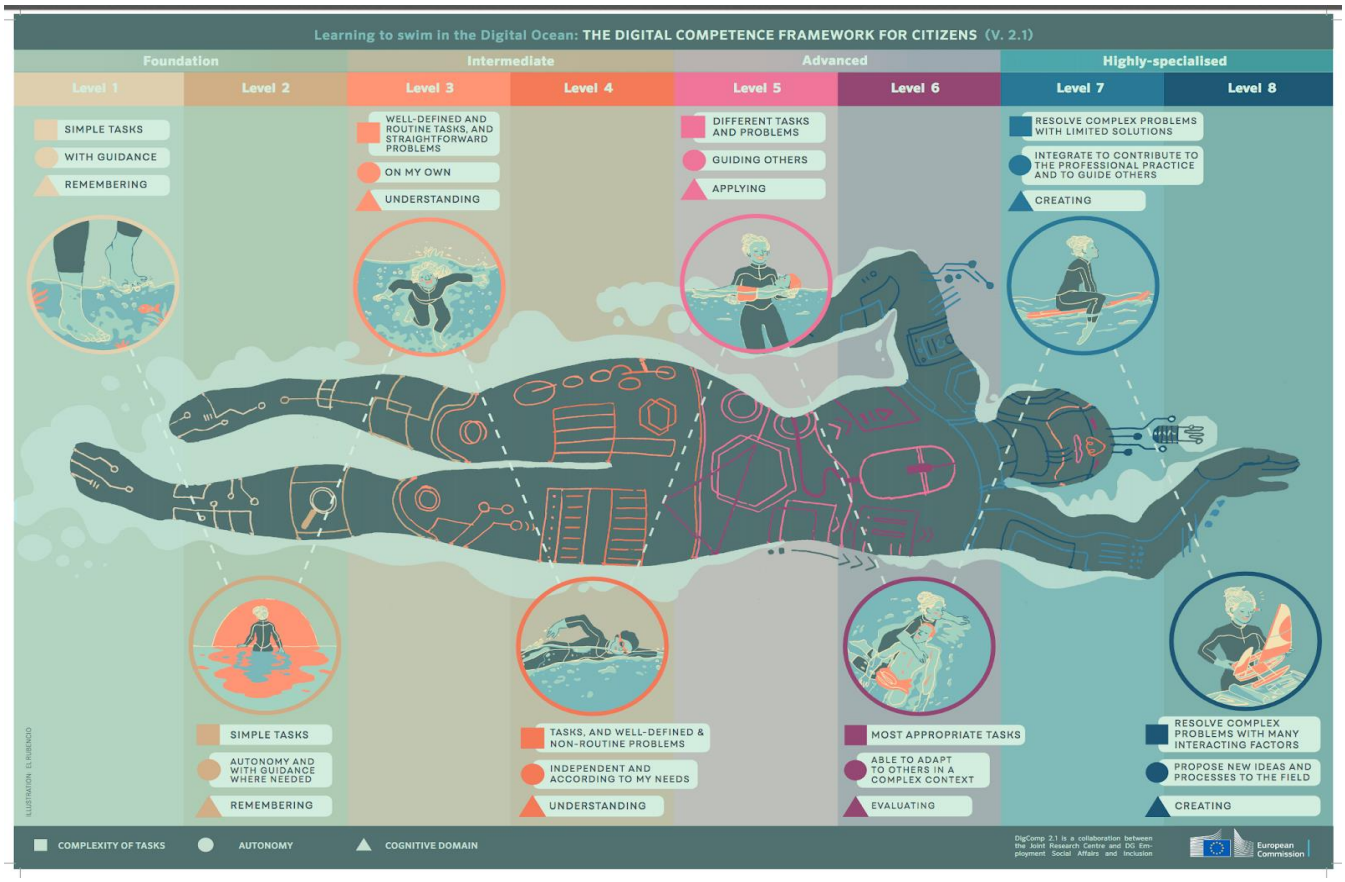
Consequently, individuals are not able to escape from the digital world, so they have to develop their digital literacy skills which are a key competency for personal fulfilment and development, employability, social inclusion and active citizenship. Improving the digital literacy became a common need in EU. This project

will prepare students for changing labor markets and for active citizenship in more diverse, mobile, digital and global societies.

In the 21st century, education institutions have responsibilities for the training of individuals with digital competencies. When the studies conducted were examined, it was explained that the lack of digital literacy skills of university students simply could not do such things as being a member of a site. In the digital age, students spend time with digital technologies generally for entertainment, playing games and socializing in the virtual world. University students are expected to use these technologies in an efficient way, and to solve the problems they face through these technologies.

In order to improve the digital literacy skills of university students a new elective course on digital literacy will be developed within the scope of E-DigiLit project. The process of finding, processing, editing, sharing, evaluating and analyzing information through network devices (smartphones, tablets, laptops and desktop computers) will be the main topic of the digital literacy elective course.

The European Digital Competence Framework, also known as DigComp, offers a tool to improve citizen's digital competence. Today, being digitally competent means that people need to have competences in all areas of DigComp (ec.europa.eu/jrc/en/digcomp). In DigComp Digital literacy was defined as **"learning to swim in the ocean"**



European Commission (2003:3) underlines the importance of digital literacy as stating: “Digital literacy has become a prerequisite for creativity, innovation and entrepreneurship and without it citizens can neither participate fully in society nor acquire the skills and knowledge necessary to live in the 21st century.”

Moreover, National Lifelong Learning Strategy (2020) states that “A digitally literate person can use technology strategically to find and evaluate information, connect and collaborate with others, produce and share original content, and use the Internet and technology tools to achieve many professional and personal goals.

Also, the Digital Agenda presented by the European Commission forms one of the seven pillars of the Europe 2020 Strategy. One of these pillars is “Promoting digital literacy, skills and inclusion”.

In this scope, E-DigiLit was designed to meet the need of university students by improving their ability of surviving in the digital age. This project will improve their digital literacy skills in a planned and academic approach. E-DigiLit also aims to:

- Develop a learning environment for digital literacy skills.
- Improve the digital literacy skills of university students
- Contribute to the capacity building of universities on digital literacy through training the teaching staff
- Facilitate the access to sources related to digital literacy by sharing outputs in project website

Since the level of knowledge and awareness on digital literacy may be different in each country, this analysis will serve as an important projector in the development of project outputs by revealing the differences between the countries.

Chapter 3: Questionnaire Methodology

In the kick off meeting of the E-DigiLit project the members of the partner institutions discussed the deadlines and scheduled the activities related to the Needs Analysis Questionnaire in the kick-off meeting and updated the deadlines due to pandemic in online meetings.

Before preparing questions for the needs analysis, Dokuz Eylül University prepared a folder and a document for questionnaire pool in G-Drive. Project members of each partner contributed to this pool by defining several questions for the questionnaire. In online meetings questionnaire items were discussed and updated by all partners. Before starting the preparation process of the curriculum, it was a need to evaluate the spectrum of digital transformation from literacy to fluency to be able to support different types of stakeholders. With the aim of capturing and understanding where our stakeholders are in the spectrum, a questionnaire instrument was prepared, revised, and translated by partners and then applied to the decision-makers and academic staff. After getting the data APEC prepared the first needs analysis report "INVESTIGATION OF DIGITAL LITERACY REQUIREMENTS OF UNIVERSITY STUDENTS THROUGH THE EYES OF DECISION-MAKERS". This report led the partners to provide relevant content to the stakeholders and prepare the second questionnaire instrument. The results of this first report helped us understand what was considered important for digital literacy and allowed us to prioritize needs. It was revised and updated several times by the partners and coordinator.

After the translation to the native languages, the questionnaire instrument was applied to a small group of university students to test the reliability and validity. The questionnaire instrument was revised and statements were shortened in line with the result of testing. The coordinator finalized the questionnaire instrument and translated into native languages. The second Need Analysis report was prepared by benefiting the data of partners. From Turkey DEU reached 425 university students, FOI reached 235 students, UCAM reached 116 students and COVUNI reached 106 students.

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While preparing the questionnaire, the issues such as "what to measure / conditions, which questions to ask, what statements to write and how to measure" were adopted by the partners as the most important elements that determine the framework of the questionnaire instrument.

The questionnaire included 3 main sections:

- **1st section:** this section gives information to the participant about the aim of project and other information related to privacy, data processing, voluntary Information, Cost, Compensation and, risks and benefits, Data Protection and Confidentiality and Cookies
- **2nd section:** demographic features and information such as the type of digital devices they have and which social media tool they use
- **3rd section:** statements related to 5 dimension of DigComp

Needs Analysis Questionnaire included questions in two different types; Multiple Choice, and Likert Type. In Likert Type answers were given from "1" to "5" which means:

0.- I don't understand what the question mean
1.- Not at all
2.- Very little
3.- Somehow
4.- Very much
5.- A lot

In this period, the types of some questions were altered in order to facilitate the analysing process. Some questions were rearranged in a way to collect quantitative data. DEU worked on the statements and the sections by preparing Google Docs on Google Drive and finalized the questionnaires in a way to facilitate the answering/analysing processes.

Participants / Sampling

A Simple Random Sampling Method was used to select the participants. After the universities got the necessary permissions from the university administration for the questionnaire they sent the questionnaire link to the university students in different departments and at different grades. They were required to fill the questionnaire online in the determined duration by each partner. University students voluntarily

participated in the questionnaire. Since some questions were within the scope of personal privacy, to answer these questions was left to discretion of the participants.

Number of Participants

In total 881 university students participated in the Needs Analysis Questionnaire from 4 different countries in a limited time. The partners applied the questionnaire by using online tools. Surveying period lasted approximately four weeks. 881 forms were analysed in total.

Table 1: Participants from Universities

	n	%
COVUNI	106	12.0
DEU	425	48.2
UCAM	116	13.2
ZAGREB	234	26.6
Total	**881**	**100.0**

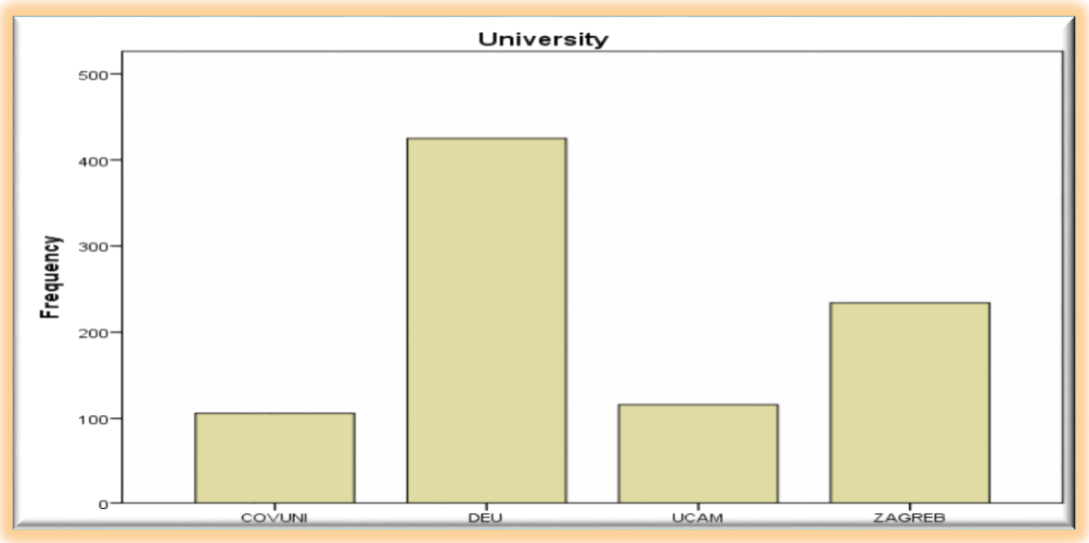

Figure 1: *Number of Participants from Universities*

As it is understood from the statistics, Turkey has the highest number of participants and Croatia takes the second place with 234 participants. Spain and UK has almost the same number of participants.

Turkey

Number of Participants: 425

Participants comprised 48.2% of total.

Croatia

Number of Participants: 234

Participants comprised 26.5% of total.

Spain

Number of Participants: 116

Participants comprised 13.1% of total.

UK

Number of Participants: 106

Participants comprised 12% of total.

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Needs Analysis Report

Data Analysis

Needs Analysis Report is to present the findings of the needs of the participants from the needs analysis questionnaire. E-DigiLit observed that in general participants needed to improve their digital literacy skills

at a very high level. Since the rates of training needs were very high among participants, E-DigiLit mainly compared small differences between the responses.

For this purpose:

- Frequencies for each item were analysed and data sets were formed via SPSS.
- Each country's data set included the number of responses so as to display the level of knowledge from 0 (I don't understand what the question mean)) to 5 (A lot)
- For each statement, E-Digilit could see how many participants chose from the options "Not at all, Very little, Somehow, Very much, A lot" in each partner country's data set.
- The total frequencies were considered to reveal general training needs of all participants, but country specific needs were also determined in order to address all training needs and also to ensure the transferability of the curriculum of new elective course on digital literacy for university students.

Findings

In this report two parts of the questionnaire applied to participants were analysed, under the titles of;

Part 1: Demographic features and general information: In this Section, Age, Gender, Year of study, Name of the degree the participant is currently studying, being an international student or not, Country of origin were asked along with the questions listed below:

- *Do you have internet access at home?*
- *Do you have internet access on your phone?*
- *Do you have internet access at the University?*
- *Point out which of these digital devices you have: mobile phone, tablet, desktop computer, laptop*
- *How often do you the following online services?*

Part 2: Statements related to 5 Dimension of DigComp

1- *Information and Data Literacy Dimension*
2- *Communication and Collaboration Dimension*
3- *Digital Content (and Media) Creation Dimension*
4- *Safety (and Well-Being) Dimension*

5- *Problem Solving Dimension*

Chapter 4:

PART 1 – DEMOGRAPHIC FEATURES AND GENERAL INFORMATION:

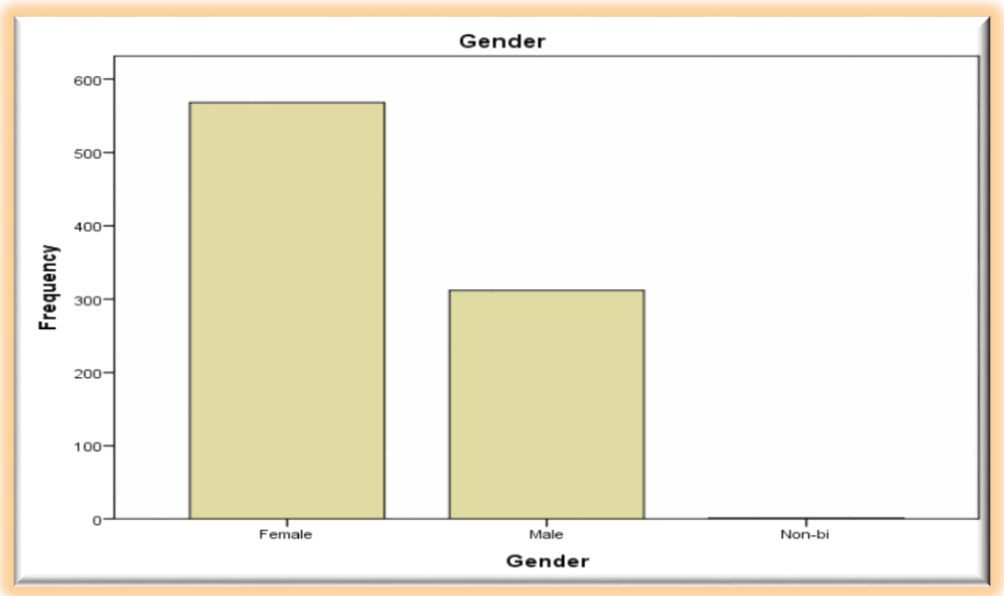
This section is multiple choice and participants are asked to choose a suitable option for them. All of the questions were asked to be answered by all participants.

A- Gender:

Table 2: Gender of the participants from 4 partner universities

	Female	Male	Non-bi	Total
COVUNI	62	43	1	106
DEU	294	131	0	425
UCAM	95	21	0	116
ZAGREB	117	117	0	234
Total	568	312	1	881
% of Total	%64.5	%35.4	%0.1	%100

Figure 2: Gender of the participants from 4 partner universities



When we look at the proportions of the participants, it is seen that 64.5% of the participants were female and 35.4% were male. In other words, it is seen that of the 881 participants, 568 are female and 312 are male.

B- Are you an international student?

Table 3: Number and rate of international and national students from 4 partner universities

	Yes	No	Total
COVUNI	49	57	106
DEU	30	395	425
UCAM	5	111	116
ZAGREB	6	228	234
Total	90	791	881
% of Total	%10.2	%89.8	%100

Figure 3: Number of international and national students from 4 partner universities

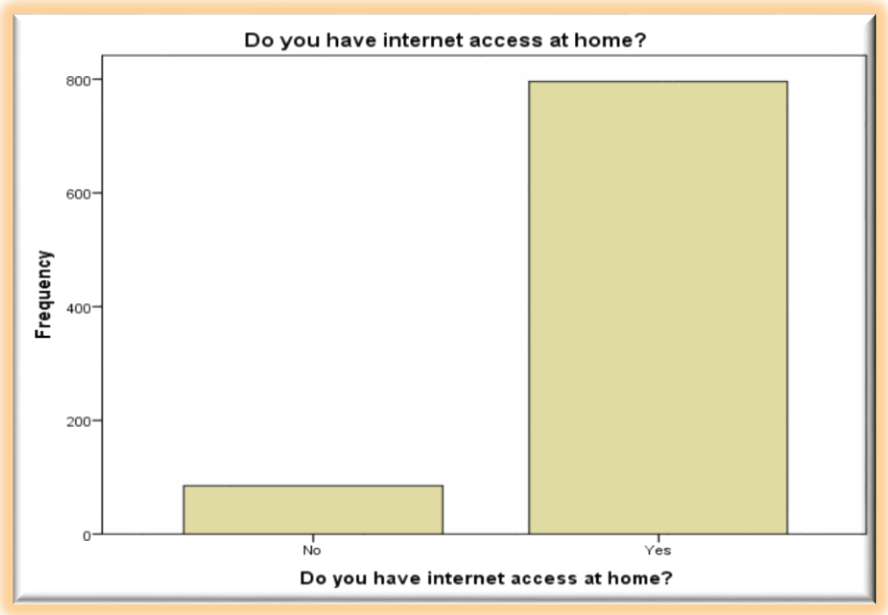
When the participants are examined in terms of being an international student or not it is seen from the statistics that majority of the participants are not international student. Of the 881 participants 791 are native students and only 90 of them are international students. In other words, %89.8 of the partners is originally from their own country. The highest number of international students belongs to COVUNI among partner universities. On the other hand, the lowest number of f international students belongs to UCAM.

C- Do you have internet access at home/on your phone/at the university?

Table 4: The number of students accessing the internet from home, mobile phone and university

	Do you have internet access at home?			Do you have internet access on your phone?			Do you have internet access at the University?		
	Yes	No	Total	Yes	No	Total	Yes	No	Total
COVUNI	106	0	106	105	1	106	106	0	106
DEU	344	81	425	406	19	425	382	43	425
UCAM	114	2	116	116	0	116	113	3	116
ZAGREB	232	2	234	230	4	234	233	1	234
Total	796	85	881	857	24	881	834	47	881

Figure 4: The number of students accessing the internet from home

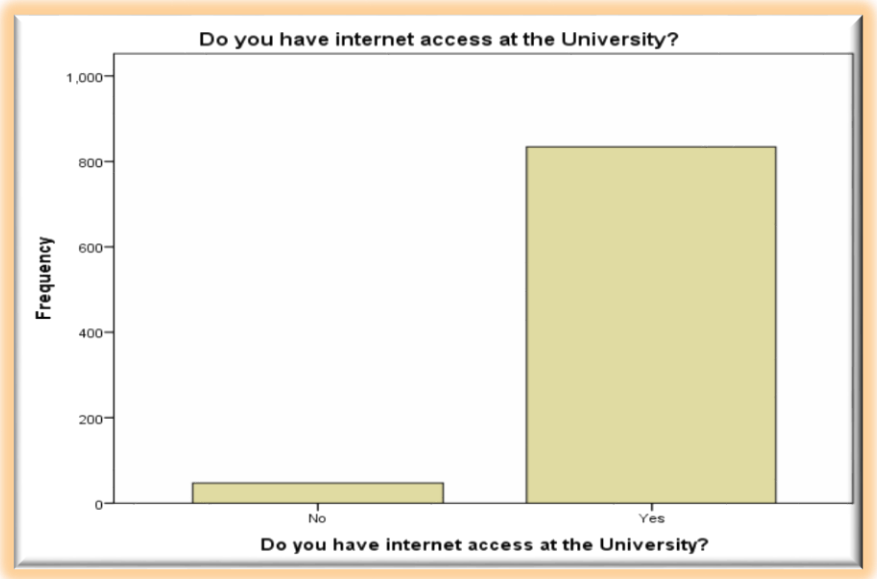


It is seen in the Table 4 and Figure 4 that of the 881 students 796 of them have internet acces at home. It is seen that the number of participants of DEU who stated that they don't have internet access at home is dramatically higher than the other partners.

Figure 5: The number of students accessing the internet from mobile phone

It is seen in the Table 4 and Figure 5 that of the 881 students 857 of them have internet access on their mobile phone. It is seen that the number of participants of DEU who stated that they don't have internet access on their mobile phone is higher than the other partners.

Figure 6: The number of students accessing the internet at the university



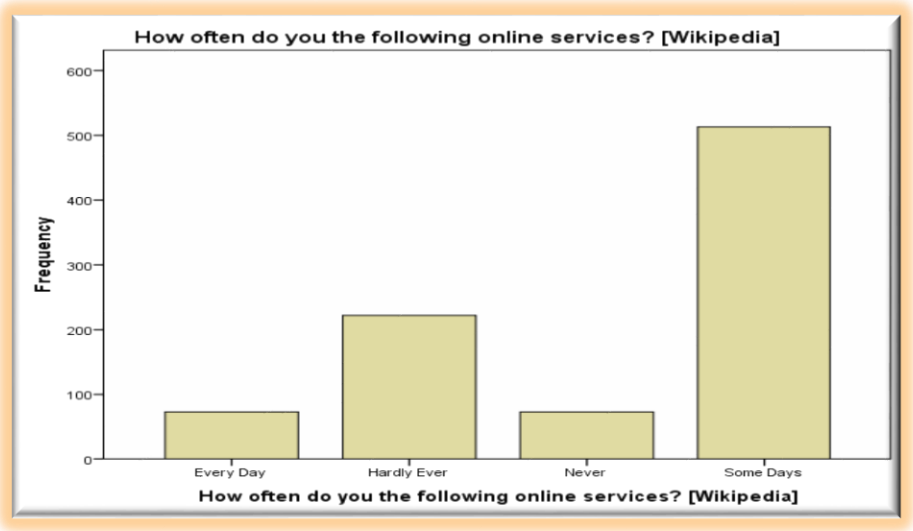
It is seen in the Table 4 and Figure 6 that of the 881 students 834 of them have internet access at the university. It is seen that the number of participants of DEU who stated that they don't have internet access at the university is higher than the other partners.

D- How often do you the following online services?

Table 5: The number of students following Wikipedia

	How often do you the following online services? [Wikipedia]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	9	41	8	48	106
DEU	45	82	45	253	425
UCAM	5	45	17	49	116
ZAGREB	14	54	3	163	234
Total	73	222	73	513	881

Figure 7: The number of students following Wikipedia

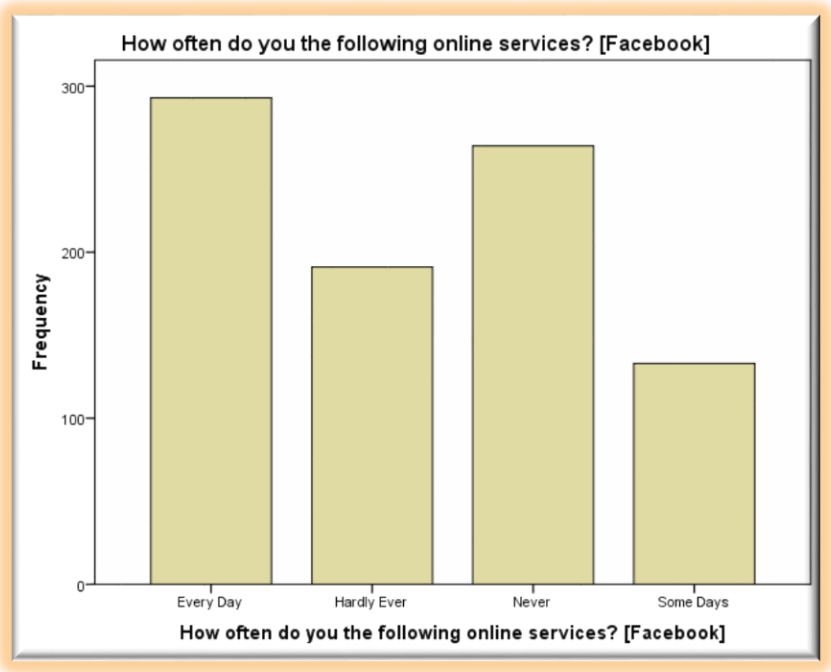


It is clearly understood from the Table 5 and Figure 6 that while 513 university students stated they follow Wikipedia some days, 222 of them stated that they hardly ever follow Wikipedia. Of 881 university students only 73 of them stated that they follow Wikipedia every day. On the other hand the number of university student who never follow Wikipedia is same with the number of students who follow it every day. **In general, the rate of following Wikipedia regularly seems to be quite low.**

Table 6: The number of students following Facebook

	How often do you the following online services? [Facebook]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	36	23	19	28	106
DEU	39	133	201	52	425
UCAM	36	18	40	22	116
ZAGREB	182	17	4	31	234
Total	293	191	264	133	881

Figure 8: The number of students following Facebook

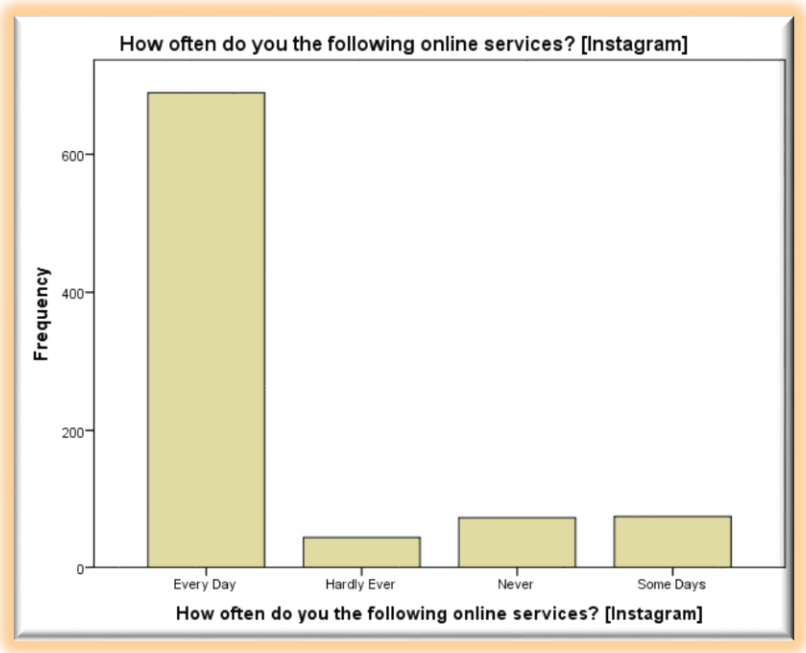


It is clearly understood from the Table 6 and Figure 8 that while 293 university students stated they follow Facebook every day, 264 of them stated that they never follow Facebook. Of 881 university students only 133 of them stated that they follow Facebook some days. On the other hand, 191 university students stated that they hardly ever follow Facebook. **In general, almost half of the participants follow Facebook in regular basis.**

Table 7: The number of students following Instagram

	How often do you the following online services? [Instagram]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	76	8	10	12	106
DEU	327	25	26	47	425
UCAM	95	3	12	6	116
ZAGREB	191	8	25	10	234
Total	689	44	73	75	881

Figure 9: The number of students following Instagram

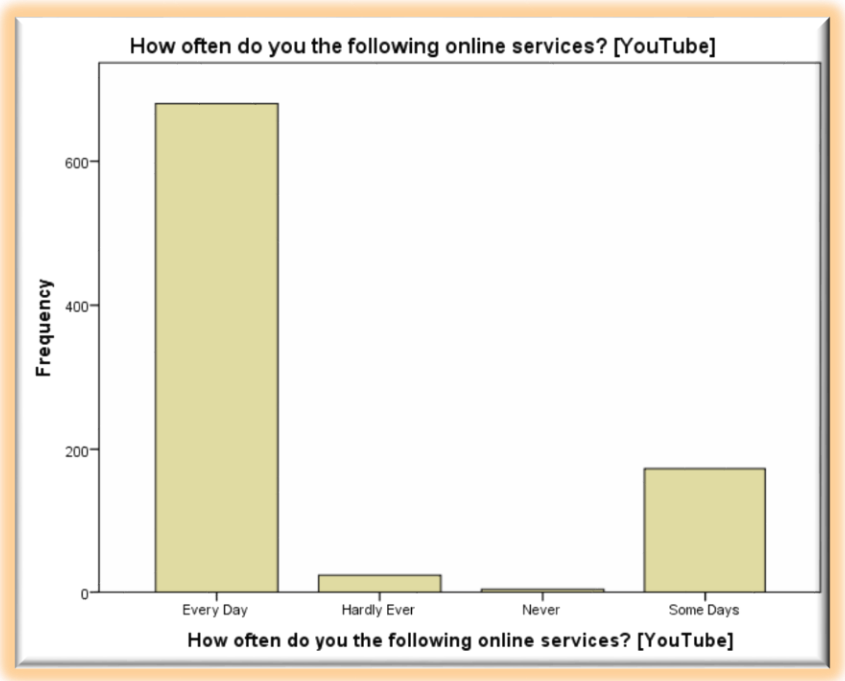


It is seen in the Table 7 and Figure 9 that while 689 university students stated they follow Instagram every day, 73 of them stated that they never follow Instagram. Of 881 university students only 44 of them stated that they hardly ever follow Instagram. On the other hand, 75 university students stated that they follow Instagram some days. **It is understood that in general, majority of the participants follow Instagram regularly.**

Table 8: The number of students following YouTube

	How often do you the following online services? [YouTube]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	81	2	0	23	106
DEU	319	13	2	91	425
UCAM	74	5	1	36	116
ZAGREB	206	4	1	23	234
Total	680	24	4	173	881

Figure 10: The number of students following YouTube

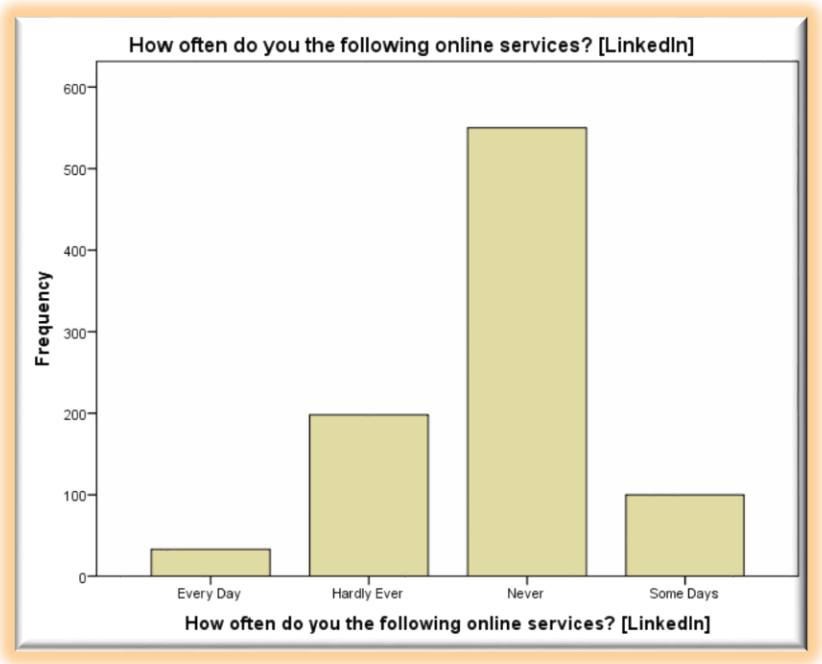


It is seen in the Table 8 and Figure 10 that while 680 university students stated they follow YouTube every day, only 4 of them stated that they never follow YouTube. Of 881 university students only 173 of them stated that they follow YouTube some days. On the other hand, 24 university students stated that they hardly ever follow YouTube**. It is understood that in general, majority of the participants follow YouTube regularly.**

Table 9: The number of students following LinkedIn

	How often do you the following online services? [LinkedIn]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	20	38	17	31	106
DEU	7	87	299	32	425
UCAM	0	18	94	4	116
ZAGREB	6	55	140	33	234
Total	33	198	550	100	881

Figure 11: The number of students following LinkedIn

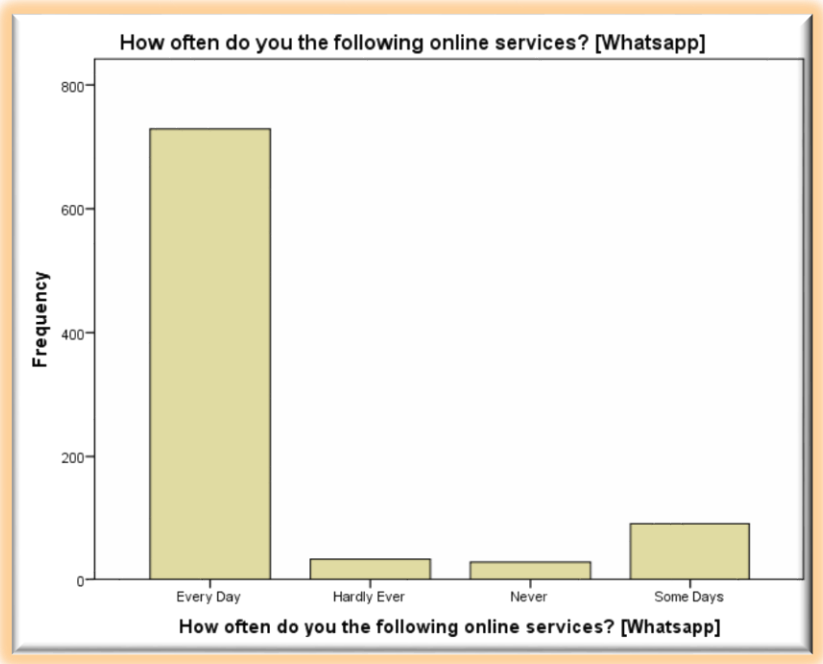


It is seen in the Table 9 and Figure 11 that while 550 university students stated they never follow LinkedIn, only 33 of them stated that they follow LinkedIn every day. Of 881 university students 198 of them stated that they hardly ever follow LinkedIn. On the other hand, 100 university students stated that they follow LinkedIn some days**. It is understood that in general, majority of the participants don't follow LinkedIn regularly.**

Table 10: The number of students following Wahtsapp

	How often do you the following online services? [Whatsapp]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	68	13	3	22	106
DEU	404	3	0	18	425
UCAM	115	0	0	1	116
ZAGREB	142	17	25	50	234
Total	729	33	28	91	881

Figure 12: The number of students following Whatsapp

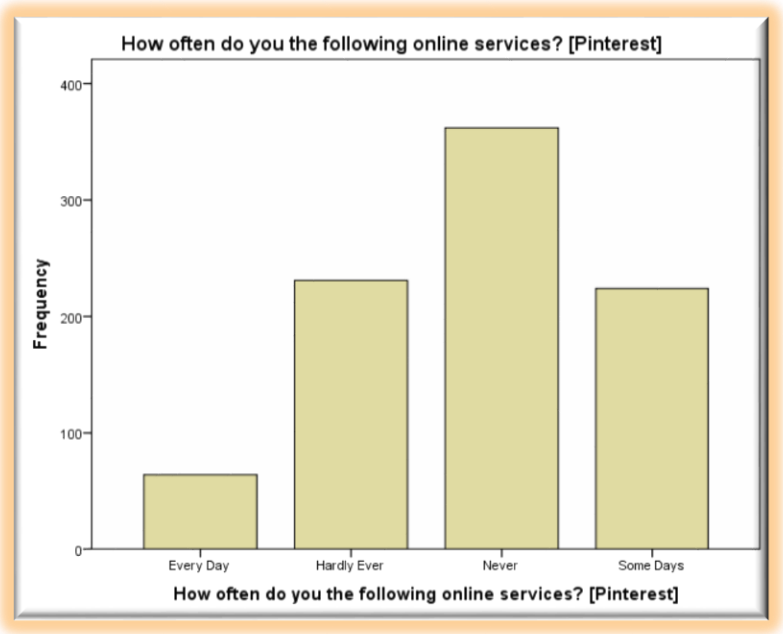


It is seen in the Table 10 and Figure 12 that while 729 university students stated they follow Whatsapp every day, only 91 of them stated that they follow Whatsapp some days. Of 881 university students only 28 of them stated that they never follow Whatsapp. On the other hand, 33 university students stated that they hardly ever follow Whatsapp**. It is understood that in general, majority of the participants follow Whatsapp regularly.**

Table 11: The number of students following Pinterest

	How often do you the following online services? [Pinterest]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	11	27	44	24	106
DEU	32	127	156	110	425
UCAM	10	34	33	39	116
ZAGREB	11	43	129	51	234
Total	64	231	362	224	881

Figure 13: The number of students following Pinterest

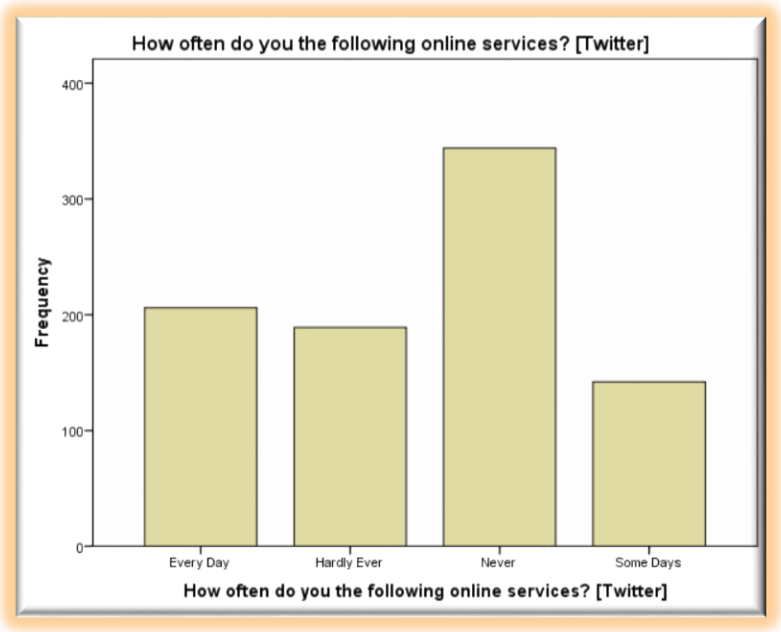


It is seen in the Table 11 and Figure 13 that while 362 university students stated they never follow Pinterest, only 64 of them stated that they follow Pinterest every day. Of 881 university students 231 of them stated that they hardly ever follow Pinterest. On the other hand, 224 university students stated that they follow Pinterest some days**. It is understood that in general, majority of the participants don't follow Pinterest regularly.**

Table 12: The number of students following Twitter

	How often do you the following online services? [Twitter]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	22	34	33	17	106
DEU	147	78	116	84	425
UCAM	30	21	41	24	116
ZAGREB	7	56	154	17	234
Total	206	189	344	142	881

Figure 14: The number of students following Twitter

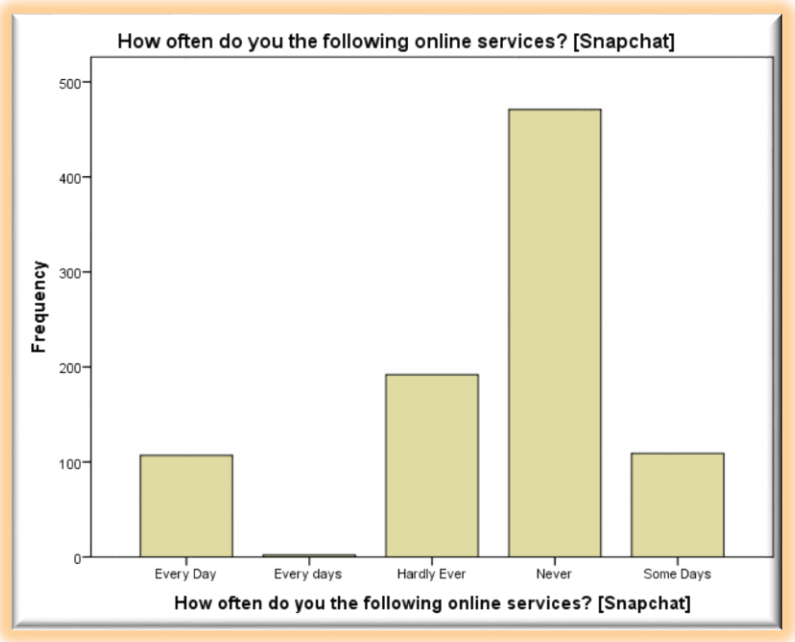


It is seen in the Table 12 and Figure 14 that while 344 university students stated they never follow Twitter, only 206 of them stated that they follow Twitter every day. Of 881 university students 189 of them stated that they hardly ever follow Twitter In. On the other hand, 142 university students stated that they follow Twitter some days**. It is understood that in general, majority of the participants don't follow Twitter regularly.**

Table 13: The number of students following Snapchat

	How often do you the following online services? [Snapchat]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	41	25	32	8	106
DEU	36	99	235	55	425
UCAM	5	32	69	10	116
ZAGREB	27	36	135	36	234
Total	109	192	471	109	881

Figure 15: The number of students following Snapchat



It is seen in the Table 13 and Figure 15 that while 471 university students stated they never follow Snapchat, only 109of them stated that they follow Snapchat every day. Of 881 university students 192 of them stated that they hardly ever follow Snapchat. On the other hand, 109 university students stated that they follow Snapchat some days**. It is understood that in general, majority of the participants don't follow Snapchat regularly.**

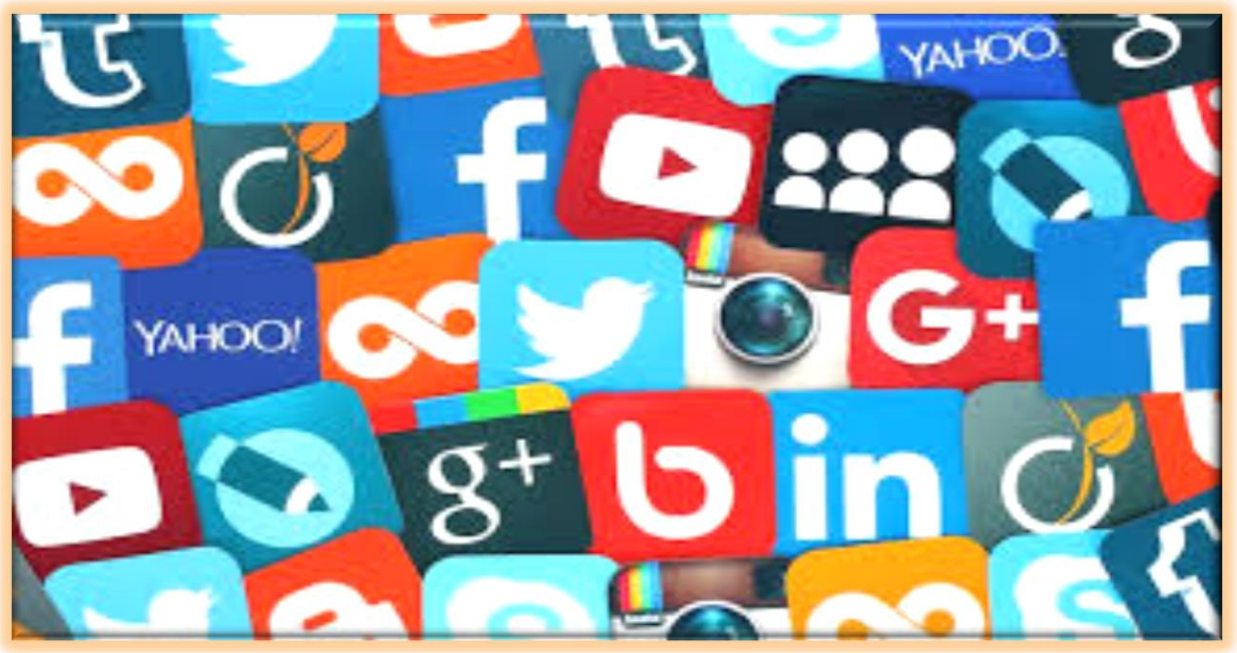
Table 14: The number of students following ResearchGate

	How often do you the following online services? [ResearchGate]				
	Every Day	Hardly Ever	Never	Some Days	Total
COVUNI	7	27	39	33	106
DEU	11	73	304	37	425
UCAM	0	7	105	4	116
ZAGREB	2	27	199	6	234
Total	20	134	647	80	881

Figure 16: The number of students following ResearchGate

It is seen in the Table 14 and Figure 16 that while 647 university students stated they never follow ResearchGate, only 20 of them stated that they follow ResearchGate every day. Of 881 university students 134 of them stated that they hardly ever follow ResearchGate. On the other hand, 80 university students stated that they follow ResearchGate some days**. It is understood that in general, majority of the participants don't follow ResearchGate regularly.**

General Evaluation on online services:



To sum up:

- 8.2% of the participants stated that they don't use Wikipedia
- 29.9% of the participants stated that they don't use Facebook,
- 8.2% of the participants stated that they don't use Instagram,
- 0.4% of the participants stated that they don't use YouTube,
- **62.4% of the participants stated that they don't use LinkedIn,**
- 3.1% of the participants stated that they don't use Whatsapp,
- 41% of the participants stated that they don't use Pinterest,
- 39% of the participants stated that they don't use Twitter,
- **53.4% of the participants stated that they don't use Snapchat and**
- **73.4% of the participants stated that they don't use Researchgate by scoring "Never"**

On the other hand,

- 8.2% of the participants stated that they always use Wikipedia
- 29.3% of the participants stated that they always use Facebook,
- **78.2% of the participants stated that they always use Instagram,**
- **77.1% of the participants stated that they always use YouTube,**

- 3.7% of the participants stated that they always use LinkedIn,
- **82.7% of the participants stated that they always use Whatsapp,**
- 7.2% of the participants stated that they always use Pinterest,
- 23.3% of the participants stated that they always use Twitter,
- 12.3% of the participants stated that they always use Snapchat and
- 2.2% of the participants stated that they always use Researchgate **by scoring "Every Day"**

It is pointed out by the statistics that Instagram, YouTube and Whatsapp are the most frequently used online services among the participants of this questionnaire. However, ResearchGate, Snapchat and LinkedIn are the less frequently used online services among the participants of this questionnaire.

Chapter 5:

PART 2 – Statements related to 5 Dimension of DigComp:

Data Analysis by Country

NEED ANALYSIS SURVEY RESULTS-COVUNI-UK:

Descriptive Statistics					
	n	**Min**	**Max**	**x̄**	**sd**
13. 1 - Information and Data Literacy	0				
13.1. 1. I know how to use advanced search functionalities in Google or other search engines.	106	0	5	3.74	1.198
13.2. 2. I can easily tell when information I find online is not false.	106	0	5	3.41	1.012
13.3. 3. I am aware digital technologies, such as search engines, can reinforce biases and prejudices (for example racism, sexism).	106	0	5	3.77	1.416
13.4. 4. I regularly bookmark webpages so that I can easily access them when I need again.	106	0	5	3.62	1.521
13.5. 5. I know how to manage cloud technologies (Google drive, Microsoft one drive etc.) for my personal or academic purposes.	106	0	5	3.92	1.147
14. 2 - Communication and Collaboration	0				
14.1. 6. I use social media for professional purposes (e.g. connecting with people in the field which I work or would like to work).	106	0	5	3.02	1.401
14.2. 7. I find it easy to participate in online discussions for professional or study purposes.	106	0	5	2.92	1.364
14.3. 8. I use online tools for group work (e.g. collaborative documents, project management).	106	1	5	3.46	1.251
14.4. 9. I am aware of how posting content online about myself or others can have unintended negative consequences.	106	0	5	4.26	1.165
15. 3 - Digital Content & Media Creation	0				
15.1. 10. I know how to create a website.	106	0	5	2.19	1.500

15.2. 11. I have created an online portfolio to showcase my work and/or reflect on my learning.	106	0	5	2.38	1.737
15.3. 12. I know how to create video content.	106	0	5	2.99	1.457
15.4. 13. I know how to edit audio-visual content.	106	0	5	2.41	1.554
15.5. 14. I know how to create a meme.	106	0	5	2.68	1.682
15.6. 15. I know how to edit content on Wikipedia.	106	0	5	2.56	1.537
15.7. 16. I understand Creative Commons licenses.	106	0	5	1.83	1.489
16. 4 - Safety & Well-being	0				
16.1. 17. I use some tools to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise).	106	0	5	2.25	1.685
16.2. 18. I know how to create a strong password.	106	1	5	4.28	.993
16.3. 19. I know how to avoid being tracked when interacting with online platforms (e.g. blocking cookies, using Facebook container).	106	0	5	2.71	1.493
16.4. 20. If I suffered from some sort of online harassment or intimidation I would know where to get help from.	106	0	5	2.83	1.558
16.5. 21. I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages.	106	0	5	key	1.470
17. 5 - Problem Solving	0				
17.1. 22. I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc).	106	0	5	2.03	1.341
17.2. 23. I regularly search for new tools to help me improve the way I work and/or study.	106	0	5	3.36	1.311
Valid N (listwise)	0				

RESULTS REGARDING DEMOGRAPHIC VARIABLES:

The needs analysis survey was carried out with 106 participants.

The participants who completed the survey study at different faculties and different grade levels of COVUNI.

The average age of the participants is 22.14. In terms of gender, 40.6 are men and 58.5% are women, .9 is

non-binary. 46.2% of the participants are international student. 100% of the participants have internet access at home, 99.1% on the phone and 100% within the university. On the other hand, 50.9% of the participants have both a phone and a laptop.

When the distribution of data related to the frequency of online services usage of the participants was analysed, it was seen that 45.3% of them used Wikipedia "sometimes". It has been observed that 71.7% of them use Instagram, %34.07 of them use Facebook,.4% of them use Youtube, 64.2% of them use Whatsapp and 20.8% of them use Twitter, %38.7 % of them use Snapchat every day.

In addition,

- 35.8% of the participants stated that they use Linkedin Hardly Ever,
- 41.5% of the participants stated that they don't use Pinterest,
- 36.8% of the participants stated that they don't use Researchgate by scoring "Never"

RESULTS OF THE NEEDS ANALYSIS SURVEY IN THE SUB-DIMENSIONS CONTEXT

Information and Data Literacy Dimension:

It is determined that:

1. I know how to use advanced search functionalities in Google or other search engines: $\bar{x}$=3.74;
2. I can easily tell when information I find online is not false: $\bar{x}$=3.41;
3. I am aware that digital technologies (eg: search engines) can support some prejudices such as racism and sexism: $\bar{x}$ = 3.77
4. I regularly bookmark webpages so that I can easily access them when I need again: $\bar{x}$=3.62;
5. I know how to manage cloud technologies (google drive, Microsoft one drive etc.) for my personal or academic purposes: $\bar{x}$=3.92;

The distribution of responses appears to vary between 3 and 4. In this dimension, the accuracy of the information available on the Internet has the lowest average, while the use of cloud computing services is high.

Communication and Collaboration Dimension

It is determined that:

1. I use social media for professional purposed: $\bar{x}$=3.02;
2. I find it easy to participate in online discussions for professional or study purposes: $\bar{x}$=2.92;
3. I use online tools for group work: $\bar{x}$=3.46;

4. I am aware of how posting content online about myself or others can have unintended negative consequences :$\bar{x}$=4.26

It is seen that the average of the participants for online collaboration is low.

Digital Content (and Media) Creation Dimension

It is determined that:

1. I know how to create a website: $\bar{x}$=2.19;
2. I have created an online portfolio to showcase my work and/or reflect on my learning: $\bar{x}$=2.38;
3. I know how to create video: $\bar{x}$=2.99;
4. I know how to edit audiovisual content: $\bar{x}$=2.41;
5. I know how to create a meme: $\bar{x}$=2.68;
6. I know how to edit content on Wikipedia: $\bar{x}$= 2.56;
7. I understand Creative Commons licenses: $\bar{x}$=1.83

It has been determined that 54.7% of the participants do not have experience in creating a website, 55.7% of them do not have experience in creating protfolios, 34.9% of them do not have experience in creating videos, 53.8% of them do not have experience in creating visual content, 45.3% of them do not have experience in creating Caps(meme), 49.1% of them do not have experience in editing wikipedia content, 66.0% of them do not have experience in Creative commons licenses.

Safety (And Well-Being) Dimension

It is determined that:

1. I use some tool to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise): $\bar{x}$=2.25;
2. I know how to create strong password: $\bar{x}$=4.28;
3. I know how to avoid being tracked when interacting with online platforms: $\bar{x}$=2.71;
4. If I suffered from some sort of online harassment or intimidation I would know where to get help from: $\bar{x}$=2.83;
5. I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages): $\bar{x}$=3.14

In this dimension, it was seen that 57.5% of the participants do not have experience in using strong password tools and 41.5% of the participants do not have experience in protecting themselves from leaving a digital footprint.

Problem Solving Dimension

It is determined that:

1. I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc.) : $\bar{x}$=2.03;
2. I regularly search for new tools to help me improve the way I work and/or study: $\bar{x}$=3.36

In this dimension, it was observed that 65.1% of the participants do not have experience in solving technical problems.

NEED ANALYSIS SURVEY RESULTS-UCAM-SPAIN

Descriptive Statistics					
	n	**Min**	**Max**	$\bar{x}$	**sd**
1.1 INFORMATION AND DATA LITERACY					
[I know how to use advanced search functions in Google or other search engines.]	116	0	5	3.31	1.254
[I can easily confirm that the information I find online is not false.]	116	0	5	2.95	1.193
[I am aware that digital technologies, such as search engines, can increase fairness and prejudice (eg, racism, sexism).]	116	0	5	3.51	1.411
[I usually use page bookmarks so that I can easily access them when I need them again.]	116	0	5	3.42	1.522
[I know how to manage cloud technologies (Google drive, Microsoft one drive etc.) for personal or academic purposes.]	116	1	5	3.89	1.207
2.6 COMMUNICATION AND COLLABORATION					
[I use social media for professional purposes (for example, connecting with people in the field in which I work or want to work).]	116	0	5	2.72	1.291
[I find it easy to participate in online discussions for professional or study purposes.]	116	0	5	2.52	1.329
[I use online tools for group work (eg collaborative documents, project management).]	116	0	5	4.02	1.142

[I am aware that posting content online about myself or others may have unforeseen negative consequences.]	116	0	5	4.34	1.143
[I know how to create a website.]	116	0	5	2.31	1.552
3.11 DIGITAL CONTENT (AND MEDIA) CREATION					
[I have created an online portfolio to show my work and / or reflect my learning.]	116	0	5	1.70	1.584
[I know how to create video content.]	116	0	5	3.02	1.610
[I know how to edit audio-visual content.]	116	0	5	2.84	1.524
[I know how to create a meme.]	116	0	5	2.68	1.787
[I know how to edit Wikipedia content.]	116	0	5	2.26	1.621
[I understand Creative Commons licenses.]	116	0	5	1.36	1.453
4.17 SAFETY (AND WELL-BEING)					
[I use some tool to make sure I set strong passwords without having to remember all of them (eg LastPass, Keypass, Lockwise).]	116	0	5	1.99	1.722
[I know how to create a strong password.]	116	0	5	3.40	1.576
[I know how to avoid being tracked when I interact on online platforms (for example, blocking cookies, using the Facebook container).]	116	0	5	2.00	1.626
[In the event of some form of virtual harassment or intimidation, I would know where to go.]	116	0	5	3.27	1.633
[I can easily disconnect and focus my attention on tasks such as reading or writing without being distracted by other activities (eg, message entry).]	116	0	5	3.09	1.383
5.23 PROBLEM SOLVING					
[I often have to ask someone else to fix the simple technical problems of my digital devices (mobile phone, computer, etc.).]	116	0	5	2.30	1.539
[I frequently look for new tools to help me improve the way I work and / or study.]	116	0	5	3.34	1.332
Valid N (listwise)	116				

RESULTS REGARDING DEMOGRAPHIC VARIABLES

The needs analysis survey was carried out with 116 participants.

The participants who completed the survey study at different faculties and different grade levels of UCAM. In terms of gender, 18.1% are men and 81.9% are women. 4.3% of the participants are international student. 98.3% of the participants have internet access at home, 100% on the phone and 97.4% within the university. On the other hand, 26.7% of the participants have both a phone and a laptop.

When the distribution of data related to the frequency of online services usage of the participants was analysed, it was seen that 42.2% of them used Wikipedia some days. It has been observed that 81.9% of them use Instagram, %31.0 of them use Facebook, 63.8% of them use Youtube, 99.1% of them use Whatsapp and 25.9% of them use Twitter every day.

In addition,

- 81.0% of the participants stated that they use Linkedin,
- 59.5 % of them use Snapchat,
- 28.4% of the participants stated that they don't use Pinterest,
- 90.5% of the participants stated that they don't use Researchgate by scoring "Never"

RESULTS OF THE NEEDS ANALYSIS SURVEY IN THE SUB-DIMENSIONS CONTEXT

Information and Data Literacy Dimension

It is determined that:

1. I know how to use advanced search functionalities in Google or other search engines: $\bar{x}$=3.31;
2. I can easily tell when information I find online is not false: $\bar{x}$=2.95;
3. I am aware that digital technologies (eg: search engines) can support some prejudices such as racism and sexism: $\bar{x}$ = 3.51;
4. I regularly bookmark webpages so that I can easily access them when I need again: $\bar{x}$=3.42;
5. I know how to manage cloud technologies (google drive, Microsoft one drive etc.) for my personal or academic purposes: $\bar{x}$=3.89;

The distribution of responses appears to vary between 2 and 4. In this dimension, the accuracy of the information available on the Internet has the lowest average, while the use of cloud computing services is high.

Communication and Collaboration Dimension

It is determined that:

1. I use social media for professional purposed: $\bar{x}$=2.72;
2. I find it easy to participate in online discussions for professional or study purposes: $\bar{x}$=2.52;
3. I use online tools for group work: $\bar{x}$=4.02;
4. I am aware of how posting content online about myself or others can have unintended negative consequences :$\bar{x}$=4.34;
5. It is seen that the average of the participants for online collaboration is low.

Digital Content (and Media) Creation Dimension

It is determined that:

1. I know how to create a website: $\bar{x}$=2.31;
2. I have created an online portfolio to showcase my work and/or reflect on my learning: $\bar{x}$=1.70;
3. I know how to create video: $\bar{x}$=3.02;
4. I know how to edit audiovisual content: $\bar{x}$=2.84 ;
5. I know how to create a meme: $\bar{x}$=2.68;
6. I know how to edit content on Wikipedia: $\bar{x}$= 2.26;
7. I understand Creative Commons licenses: $\bar{x}$=1.36;

It has been determined that 53.4% of the participants do not have experience in creating a website, 72.4% of them do not have experience in creating protfolios, 33.6% of them do not have experience in creating videos, 39.7% of them do not have experience in creating visual content, 50.0% of them do not have experience in creating Caps(meme), 60.3% of them do not have experience in editing wikipedia content, 79.3% of them do not have experience in Creative commons licenses.

Safety (And Well-Being) Dimension

It is determined that:

1. I use some tool to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise): $\bar{x}$=1.99;
2. I know how to create strong password: $\bar{x}$=3.40;
3. I know how to avoid being tracked when interacting with online platforms: $\bar{x}$=2.00;

4. If I suffered from some sort of online harassment or intimidation I would know where to get help from: x̄=3.27;
5. I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages): x̄=3.09

In this dimension, it was seen that 62.9% of the participants do not have experience in using strong password tools and 63.8% of the participants do not have experience in protecting themselves from leaving a digital footprint.

Problem Solving Dimension

It is determined that:

1. I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc.) : x̄=2.30;
2. I regularly search for new tools to help me improve the way I work and/or study: x̄=3.34

In this dimension, it was observed that 58.6% of the participants do not have experience in solving technical problems.

NEED ANALYSIS SURVEY RESULTS-ZAGREB

Descriptive Statistics					
	n	**Min**	**Max**	x̄	**sd**
1.1 INFORMATION AND DATA LITERACY					
[I know how to use advance search functionalities in Google or other search engines.]	234	0	5	4.19	.907
[I can easily tell when information I find online is not false.]	234	1	5	3.91	.844
[I am aware digital technologies, such as search engines, can reinforce biases and prejudices (for example racism, sexism).]	234	0	5	3.35	1.560
[I regularly bookmark webpages so that I can easily access them when I need again.]	234	0	5	3.44	1.423
[I know how to manage cloud technologies (Google drive, Microsoft one drive etc.) for my personal or academic purposes.]	234	1	5	4.16	1.031
2.6 COMMUNICATION AND COLLABORATION					
[I use social media for professional purposed (e.g. connecting with people in the field where I work or would like to work)]	234	1	5	3.15	1.227

[I find it easy to participate in online discussions for professional or study purposes.]	234	0	5	3.35	1.221
[I use online tools for group work (e.g. collaborative documents, project management)]	234	0	5	3.42	1.299
[I am aware of how posting content online about myself or others can have unintended negative consequences.]	234	0	5	4.45	.898
[I know how to create a website]	234	0	5	3.05	1.461
3.11 DIGITAL CONTENT (AND MEDIA) CREATION					
[I have created an online portfolio to showcase my work and/or reflect on my learning.]	234	0	5	1.94	1.477
[I know how to create video content]	234	0	5	3.72	1.273
[I know how to edit audio-visual content]	234	1	5	3.35	1.366
[I know how to create a meme.]	234	0	5	3.78	1.438
[I know how to edit content on Wikipedia.]	234	0	5	3.26	1.472
[I understand Creative Commons licenses.]	234	0	5	1.89	1.624
4.17 SAFETY (AND WELL-BEING)					
[I use some tool to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise).]	234	0	5	1.71	1.329
[I know how to create strong password.]	234	0	5	4.13	1.127
[I know how to avoid being tracked when interacting with online platforms (e.g. blocking cookies, using Facebook container).]	234	0	5	3.56	1.293
[If I suffered from some sort of online harassment or intimidation I would know where to get help from.]	234	0	5	3.70	1.312
) [I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages]	234	0	5	3.29	1.323
5.23 PROBLEM SOLVING					
[I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc.)]	234	0	5	1.47	.959
[I regularly search for new tools to help me improve the way I work and/or study]	234	0	5	3.12	1.200
Valid N (listwise)	234				

RESULTS REGARDING DEMOGRAPHIC VARIABLES

The needs analysis survey was carried out with 234 participants.

The participants who completed the survey study at different faculties and different grade levels of ZAGREB University. In terms of gender, 50% are men and 50% are women. 2.6% of the participants are international student. 99.1% of the participants have internet access at home, 98.3% on the phone and 99.6% within the university. On the other hand, 46.6% of the participants have both a phone and a laptop.

When the distribution of data related to the frequency of online services usage of the participants was analysed, it was seen that 69.7% of them used Wikipedia some days. It has been observed that 81.6% of them use Instagram, %77.8 of them use Facebook, 88.0% of them use Youtube, 60.7% of them use Whatsapp every day.

In addition,

- 65.8% of the participants stated that they use Twitter,
- 59.8% of the participants stated that they use Linkedin,
- 57.7 % of them use Snapchat,
- 55.1% of the participants stated that they don't use Pinterest,
- 85.0% of the participants stated that they don't use Researchgate by scoring "Never"

RESULTS OF THE NEEDS ANALYSIS SURVEY IN THE SUB-DIMENSIONS CONTEXT

Information and Data Literacy Dimension

It is determined that:

1- I know how to use advanced search functionalities in Google or other search engines: $\bar{x}$=4.19;
2- I can easily tell when information I find online is not false: $\bar{x}$=3.91;
3- I am aware that digital technologies (eg: search engines) can support some prejudices such as racism and sexism: $\bar{x}$ = 3.35;
4- I regularly bookmark webpages so that I can easily access them when I need again: $\bar{x}$=3.44;
5- I know how to manage cloud technologies (google drive, Microsoft one drive etc.) for my personal or academic purposes: $\bar{x}$=4.16;

The distribution of responses appears to vary between 3 and 4. In this dimension, the accuracy of the information available on the Internet has the lowest average, while the use of cloud computing services is high.

Communication and Collaboration Dimension

It is determined that:

1- I use social media for professional purposed: $\bar{x}$=3.15;
2- I find it easy to participate in online discussions for professional or study purposes: $\bar{x}$=3.35;
3- I use online tools for group work: $\bar{x}$=3.42;
4- I am aware of how posting content online about myself or others can have unintended negative consequences :$\bar{x}$=4.45;
5- It is seen that the average of the participants' social media for professional purposed is low.

Digital Content (and Media) Creation Dimension

It is determined that:

1- I know how to create a website: $\bar{x}$=3.05;
2- I have created an online portfolio to showcase my work and/or reflect on my learning: $\bar{x}$=1.94;
3- I know how to create video: $\bar{x}$=3.72;
4- I know how to edit audiovisual content: $\bar{x}$=3.35;
5- I know how to create a meme: $\bar{x}$=3.78;
6- I know how to edit content on Wikipedia: $\bar{x}$= 3.26;
7- I understand Creative Commons licenses: $\bar{x}$=1.89;

It has been determined that Creative Commons licenses and how to create a website are low.

Safety (And Well-Being) Dimension

It is determined that:

1- I use some tool to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise): $\bar{x}$=1.71;
2- I know how to create strong password: $\bar{x}$=4.13;

3- I know how to avoid being tracked when interacting with online platforms: x̄=3.56;
4- If I suffered from some sort of online harassment or intimidation I would know where to get help from: x̄=3.70;
5- I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages): x̄=3.29

In this dimension, it was seen that 78.2% of the participants do not have experience in using strong password tools, %29.1 of them do not have experience in switch off and focus their attention on tasks such as reading or writing without getting distracted by other activities and 24.4% of the participants do not have experience in protecting themselves from leaving a digital footprint.

Problem Solving Dimension

It is determined that:

1- I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc.) : x̄=1.47;
2- I regularly search for new tools to help me improve the way I work and/or study: x̄=3.12

In this dimension, it was observed that 88.0% of the participants do not have experience in solving technical problems.

NEED ANALYSIS SURVEY RESULTS –DEU-TURKEY

Descriptive Statistics					
	n	**Min**	**Max**	x̄	**sd**
1.1 INFORMATION AND DATA LITERACY					
[I know how to use advance search functionalities in Google or other search engines.]	425	0	5	3.56	1.247
[I can easily tell when information I find online is not false.]	425	0	5	3.54	1.098
[I am aware digital technologies, such as search engines, can reinforce biases and prejudices (for example racism, sexism).]	425	0	5	3.62	1.377
[I regularly bookmark webpages so that I can easily access them when I need again.]	425	0	5	3.56	1.505

[I know how to manage cloud technologies (Google drive, Microsoft one drive etc.) for my personal or academic purposes.]	425	0	5	3.73	1.333
2.6 COMMUNICATION AND COLLABORATION					
[I use social media for professional purposed (e.g. connecting with people in the field where I work or would like to work)]	425	0	5	3.16	1.444
[I find it easy to participate in online discussions for professional or study purposes.]	425	0	5	3.34	1.359
[I use online tools for group work (e.g. collaborative documents, project management)]	425	0	5	3.06	1.456
[I am aware of how posting content online about myself or others can have unintended negative consequences.]	425	0	5	3.86	1.303
3.11 DIGITAL CONTENT (AND MEDIA) CREATION					
[I know how to create a website]	425	0	5	1.96	1.550
[I have created an online portfolio to showcase my work and/or reflect on my learning.]	425	0	5	2.15	1.627
[I know how to create video content]	425	0	5	2.82	1.564
[I know how to edit audio-visual content]	425	0	5	2.90	1.524
[I know how to create a meme.]	425	0	5	2.66	1.653
[I know how to edit content on Wikipedia.]	425	0	5	2.30	1.481
[I understand Creative Commons licenses.]	425	0	5	1.82	1.489
4.17 SAFETY (AND WELL-BEING)					
[I use some tool to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise).]	425	0	5	1.59	1.512
[I know how to create strong password.]	425	0	5	3.24	1.616
[I know how to avoid being tracked when interacting with online platforms (e.g. blocking cookies, using Facebook container).]	425	0	5	2.60	1.683
[If I suffered from some sort of online harassment or intimidation I would know where to get help from.]	425	0	5	3.18	1.573
) [I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages]	425	0	5	3.07	1.470
5.23 PROBLEM SOLVING					
[I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc.)]	425	0	5	2.81	1.480
[I regularly search for new tools to help me improve the way I work and/or study]	425	0	5	3.63	1.326

RESULTS REGARDING DEMOGRAPHIC VARIABLES

The needs analysis survey was carried out with 430 participants. Participants who were found to report false or incomplete opinions were excluded from the analysis. In total, the data of 425 participants were analysed. The participants who completed the survey study at different faculties and different grade levels of Dokuz Eylül University. The average age of the participants is 21.30. In terms of gender, 30.8% are men and 69.2% are women. 92.7% of the participants are Turkish citizens. 80.9% of the participants have internet access at home, 95.5% on the phone and 89.92% within the university. On the other hand, 45% of the participants have both a phone and a laptop.

When the distribution of data related to the frequency of online services usage of the participants was analysed, it was seen that 59.5% of them used Wikipedia "sometimes". It has been observed that 76.9% of them use Instagram, 75.1% of them use Youtube, 95.1% of them use Whatsapp and 34.6% of them use Twitter every day.

In addition,

- 47.3% of the participants stated that they don’t use Facebook,
- 70.4% of the participants stated that they don’t use Linkedin,
- 36.7% of the participants stated that they don’t use Pinterest,
- 55.3% of the participants stated that they don’t use SnapChat and
- 71.52% of the participants stated that they don’t use Researchgate by scoring “Never”

Also, the participants stated that they mostly use Zoom, Microsoft Teams and Sakai applications daily.

RESULTS OF THE NEEDS ANALYSIS SURVEY IN THE SUB-DIMENSIONS CONTEXT

Information and Data Literacy Dimension

It is determined that:

1- I know how to use advanced search functionalities in Google or other search engines: $\bar{x}=3.56$;
2- I can easily tell when information I find online is not false: $\bar{x}=3.54$;
3- I am aware that digital technologies (eg: search engines) can support some prejudices such as racism and sexism: $\bar{x} = 3.62$
4- I regularly bookmark webpages so that I can easily access them when I need again: $\bar{x}=3.56$;

5- I know how to manage cloud technologies (google drive, Microsoft one drive etc.) for my personal or academic purposes: $\bar{x}$=3.73;

The distribution of responses appears to vary between 3 and 4. In this dimension, the accuracy of the information available on the Internet has the lowest average, while the use of cloud computing services is high.

Communication and Collaboration Dimension

It is determined that:

1- I use social media for professional purposed: $\bar{x}$=3.16;
2- I find it easy to participate in online discussions for professional or study purposes: $\bar{x}$=3.34;
3- I use online tools for group work: $\bar{x}$=3.06;
4- I am aware of how posting content online about myself or others can have unintended negative consequences :$\bar{x}$=3.86

It is seen that the average of the participants for online collaboration is low.

Digital Content (and Media) Creation Dimension

It is determined that:

1- I know how to create a website: $\bar{x}$=1.96;
2- I have created an online portfolio to showcase my work and/or reflect on my learning: $\bar{x}$=2.15;
3- I know how to create video: $\bar{x}$=2.82;
4- I know how to edit audiovisual content: $\bar{x}$=2.90;
5- I know how to create a meme: $\bar{x}$=2.66;
6- I know how to edit content on Wikipedia: $\bar{x}$= 2.30;
7- I understand Creative Commons licenses: $\bar{x}$=1.82

It has been determined that 64.4% of the participants do not have experience in creating a website, 60.7% of them do not have experience in creating protfolios, 42.1% of them do not have experience in creating videos, 38.1% of them do not have experience in creating visual content, 46.8% of them do not have experience in

creating Caps, 56% of them do not have experience in editing wikipedia content, 68.2% of them do not have experience in Creative commons licenses.

Safety (And Well-Being) Dimension

It is determined that:

1- I use some tool to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise): $\bar{x}$=1.59;
2- I know how to create strong password: $\bar{x}$=3.24;
3- I know how to avoid being tracked when interacting with online platforms: $\bar{x}$=2.60;
4- If I suffered from some sort of online harassment or intimidation I would know where to get help from: $\bar{x}$=3.18;
5- I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages): $\bar{x}$=3.07

In this dimension, it was seen that 76.2% of the participants do not have experience in using strong password tools and 46.1% of the participants do not have experience in protecting themselves from leaving a digital footprint.

Problem Solving Dimension

It is determined that:

1- I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc.) : $\bar{x}$=2.81;
2- I regularly search for new tools to help me improve the way I work and/or study: $\bar{x}$=3.63

In this dimension, it was observed that 41.6% of the participants do not have experience in solving technical problems.

GENERAL DATA ANALYSIS BY DIMENSIONS:

	COVUNI		DEU		UCAM		ZAGREB	
INFORMATION AND DATA LITERACY	x̄	sd	x̄	sd	x̄	sd	x̄	sd
1. I know how to use advance search functionalities in Google or other search engines	3.74	1.247	3.56	1.247	3.31	1.254	4.19	.907
2. I can easily tell when information I find online is not false	3.41	1.012	3.54	1.098	2.95	1.193	3.91	.844
3. I am aware digital technologies, such as search engines, can reinforce biases and prejudices (for example racism, sexism)	3.77	1.416	3.62	1.377	3.51	1.411	3.35	1.560
4. I regularly bookmark webpages so that I can easily access them when I need again.	3.62	1.521	3.56	1.505	3.42	1.522	3.44	1.423
5. I know how to manage cloud technologies (google drive, Microsoft one drive etc.) for my personal or academic purposes.	3.92	1.147	3.73	1.333	3.89	1.207	4.16	1.031

The distribution of responses appears to vary between 2.95 and 4.19. In this dimension, “I can easily tell when information I find online is not false” has the lowest average, while the use of cloud computing services and use advance search functionalities are high. In this dimension, it is seen that the highest score is Zagreb and the lowest score is UCAM.

	COVUNI		DEU		UCAM		ZAGREB	
COMMUNICATION AND COLLABORATION	x̄	sd	x̄	sd	x̄	sd	x̄	sd
6. I use social media for professional purposed (e.g. connecting with people in the field where I work or would like to work)]	3.02	1.401	3.16	1.444	2.72	2.72	3.15	1.227
7. I find it easy to participate in online discussions for professional or study purposes	2.92	1.364	3.34	1.359	2.52	1.329	3.35	1.221
8. I use online tools for group work (e.g. collaborative documents, project management)]	3.46	1.251	3.06	1.456	4.02	1.142	3.42	1.299
9. I am aware of how posting content online about myself or others can have unintended negative consequences.	4.26	1.165	3.86	1.303	4.34	1.143	4.45	.898

In communication and collaboration dimension, the distribution of responses ranges from 2.52 to 4.45. It is seen that the average of using online discussions is low for all participants. “I am aware of how posting content online about myself or others can have unintended negative consequences” is higher.

	COVUNI		DEU		UCAM		ZAGREB	
DIGITAL CONTENT (AND MEDIA) CREATION	x̄	sd	x̄	sd	x̄	sd	x̄	sd
10. I know how to create a website.	2.19	1.500	1.96	1.550	2.31	1.552	3.05	1.461
11. I have created an online portfolio to showcase my work and/or reflect on my learning.	2.38	1.737	2.15	1.627	1.70	1.584	1.94	1.477
12. I know how to create video content.	2.99	1.457	2.82	1.564	3.02	1.610	3.72	1.273
13. I know how to edit audio-visual content.	2.41	1.554	2.90	1.524	2.84	1.524	3.35	1.366
14. I know how to create a meme.	2.68	1.682	2.66	1.653	2.68	1.787	3.78	1.438
15. I know how to edit content on Wikipedia.	2.56	1.537	2.30	1.481	2.26	1.621	3.26	1.472
16. I understand Creative Commons licenses.	1.83	1.489	1.82	1.489	1.36	1.453	1.89	1.624

It has been determined that “I understand Creative Commons licenses.” and “I know how to create a website.” are low. In general, the distribution of responses in this dimension varies between 1.36 and 3.78. At the same time, this dimension scored lower than other dimensions. It can be said that Digital content (and media) creation is low for all participants.

	COVUNI		DEU		UCAM		ZAGREB	
SAFETY (AND WELL-BEING)	x̄	sd	x̄	sd	x̄	sd	x̄	sd
17. I use some tool to make sure I set strong passwords and not to have to remember them all (e.g. LastPass, Keypass, Lockwise).	2.25	1.685	1.59	1.512	1.99	1.722	1.71	1.329
18. I know how to create strong password.	4.28	.993	3.24	1.616	3.40	1.576	4.13	1.127
19. I know how to avoid being tracked when interacting with online platforms (e.g. blocking cookies, using Facebook container).	2.71	1.493	2.60	1.683	2.00	1.626	3.56	1.293
20. If I suffered from some sort of online harassment or intimidation	2.83	1.558	3.18	1.573	3.27	1.633	3.70	1.312

I would know where to get help from.								
21. I can easily switch off and focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages.	3.14	1.470	3.07	1.470	3.09	1.383	3.29	1.323

In this dimension, it was seen that "I use some tool to make sure I set strong passwords and not to have to remember them all" is low, while "I know how to create strong password." is high. Also footprint, safety, well-being dimensions appears to vary between 1.59 and 4.13.

	COVUNI		**DEU**		**UCAM**		**ZAGREB**	
PROBLEM SOLVING	x̄	sd	x̄	sd	x̄	sd	x̄	sd
22. I usually have to ask someone else to fix simple technical problems with my digital devices (mobile phone, computer etc.)]	2.03	1.341	2.81	1.480	2.30	1.539	1.47	.959
23. I regularly search for new tools to help me improve the way I work and/or study]	3.36	1.311	3.63	1.326	3.34	1.332	3.12	1.200

In this dimension, it was observed that the participants' experience in solving technical problems is lower for all Universities.

Chapter 6 – CONCLUSION

As to the results of statistics the suggested learning outcomes of curriculum by dimensions are listed below:

1. Handling information, data & work processes
Use advanced functionalities in most popular web search engines [Google, Bing, DuckDuckGo, Ecosia]
Use specialist search engines, online repositories and curated collections to find relevant information and resources [Google Scholar, Scopus, Web of Science, LinkedIn Learning]
Assess the validity of information and reliability of sources (e.g. spotting fake news, fact checking) [news site, social media messages, Wikipedia]
Collect data through online surveys and polling tools [Google Forms, O365 Forms, Mentimeter, Kahoot
Understand the way algorithms work and how digital technologies can limit our worldviews and promote biases or prejudices (e.g. search engines reinforcing racism or sexism)
Use tools to bookmark and/or save websites and online resources in order to quickly retrieve them when needed [web browsers, Zotero, Diigo, Wakelet, Pocket, Wallabag]
Understand why and when to quote and use reference management systems to store bibliographic data and cite works [Zotero, EndNote, RefWorks]
Use cloud technologies to store, sort out, access and sync files and notes across devices [Google Drive, O365 One Drive, OneNote]

2. Sharing, Communicating & Collaborating
Use social media to connect with people in the industry field and develop a professional network [Twitter, LinkedIn, Research Gate]
Use appropriate conventions and communication styles (nettiquete) when communicating via email or other channels.
Choose appropriate online tools for group work, collaborative tasks and project management [O365 collaboration functionalities, Planner, Teams, Wikis]
Share content by means of third-party platforms and systems [Youtube, Prezi, Zenodo, Medium, Slideshare, OER Commons, Flickr, Archive.org]
Sharing large files in a secure way [Wetransfer, O365 OneDrive, Firefox Send]
Combine different digital tools and services to communicate persuasively, confidently and expressively.
Understand legislation to copyright in your country and how public licences such as Creative Commons work

Understand copyright legislation and publica licence (e.g. Creative commons)

3. Creating Digital Media & Content
Create a personal portfolio (e.g. portfolio, blog) [Blogger]
Design a simple web page [University domains, WP]
Create animations [animated Gifs, Scribe, Adobe After Effects]
Develop audio-visual content (presentation, audio and video etc)
Integrate and publish new digital content into existing resources in order to improve them [Wikipedia, Wikidata, Wikimedia Commons, etc.]
Understand how not to infringe copyright when reusing content created by others [Creative Commons licenses, CLA licence, fair dealing exceptions]
Analyze/Apply/Choose/Suggest copyright and/or licences for newly created digital information and content (e.g. Copyright, Creative Commons, GPL)
Create caps for social media enviroments.
Explain basic logic of different programming languages.

4. Keeping Safe & Well-Being
Create and produce strong passwords by using digital tools [LastPass, KeyPass, Firefox Lockwise]
Understand how online trackers (e.g. cookies) work to avoid being tracked (digital footprint) when interacting with online platforms [web browser privacy settings, Privacy Badger, Firefox Containers]
Use a Virtual Privacy Network (VPN) to share information online securely
Understand how posting content online about myself or others can have unintended negative consequences.
Select effective and safe approach in case of suffering or witnessing some sort of online harassment or intimidation
Switch off and/or focus my attention on tasks such as reading or writing without getting distracted by other activities (e.g. incoming messages)
Explain and manage multitasking when studying.
Notice the characteristics and dangers of malicious software and other threats
Understand staying up to date with digital technologies to ensure the necessary protection.

5. Problem Solving
Apply the phase of problem solving when face some problems in online learning environment
Find ways of fixing simple technical problems with my digital devices or software on my own.
Get support from the right source when facing a more complex technical challenge [IT HelpDesk]
Solve technical problems individually or cooperatively by the help of online digital tools or software (Teamviewer, Anydesk)
Collaborate other people or friends in online environment to solve some real life problems or others (Forums, buying new devices etc)
Find tools and technologies that support to solve problems in the digital environment
Develop a personal strategy for the continuous improvement of digital competencies.