

# **The impact of the COVID-19 pandemic on User Experience Design of Digital Platforms.**

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<b>Degree program</b> Business Information Technology	
<b>Report/thesis title</b> The impact of the COVID-19 pandemic on User Experience Design of Digital Platforms.	<b>Number of pages and appendix pages</b>  <b>62+4</b>
<p>The thesis work is aimed to research the changes in User Experience on Digital Platforms (DP) as a result of the pandemic of Covid-19. The global situation forced the shift of the normal lifestyle into an almost completely online reality. Consumerism as we knew it has changed and the changes impacted many people's lives. Habits that used to be trivial are now more complicated to change and modify. The end-users of Digital platforms have adapted to the new reality, and their choices and behavioural patterns have changed.</p> <p>Many have switched to remote work online and adapted to new time management guidelines and adopted newer platforms into their lives in order to accomplish more tasks. People who lost their jobs due to the pandemic have decided to dedicate time to acquiring new tools and skills using Digital Platforms, that will allow them to integrate into the job market and allow them to work from home. The skills that allow working remotely are perceived as the more reliable option of employment as a result.</p> <p>The consumption of entertainment has changed as well. Considering the self-isolation regulations people have decided to consume online streaming services on a bigger scale and purchase online the necessities to avoid going to the physical store. The impact on good habits has been significant as well. The free time allowed people to focus on their families and their physical and mental health. Many have started to work out and adopt healthier eating habits, taking into consideration the immune system that is very important in a time of a global pandemic.</p> <p>All these changes need to be considered by UX specialists in companies that provide Digital Services of any kind. The emphasis on research of the user behaviour and customer understanding in a time of a crisis is very critical because this will help companies in the future to be able to handle any sorts of critical situations in the future and allow their customers to enjoy their services and find them useful. The thesis researches the changes that might have occurred in users of Digital Platforms and provides recommendations for further research and modification of Digital Services to align with the new situation.</p>	
<b>Keywords</b> User experience, COVID-19, Digital Platforms (DP), Digital Service Design, End-User, UI Elements, User-Centered Design (UCD), User Journey, Social isolation, Usability.	

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# 1 Introduction

Since the beginning of the 21<sup>st</sup> century, our daily life has started to become more and more dependent on Digital Platforms (DP). Digital platforms are not including social media, they also involve search engines, E-commerce, communication apps, and educating platforms. There is a very limited amount of research that is available and is valid enough, but through what I was able to find out during the research of this topic is that people have changed their approach toward digital platforms, and some see them as an integral part of our life, and many believe this will continue after the pandemic. The UX part is essential for a digital platform to remain relevant, or to take over the market. Currently, the situation in the DP market is, that old platforms are trying to remain relevant, while new platforms are getting the opportunity of their life to establish an audience.

People are more comfortable with trying new platforms, whatever gives them the pleasure of use and their goal faster. This study focuses on finding out what is happening in real life, how did the shift from an already saturated lifestyle with DP into a lifestyle that is completely dependent on DP, affected people's behavior, how did it affect their User Experience, how companies can improve in order to give the users what they desire, and what is the future impact of such changes.

The precise research questions will be researched in two steps. First qualitative research and conduction of interviews to identify the relevancy of the conclusions made by the research and articles I have researched. Identify whether people think, feel, and consider the changes that happened in the way they interact with digital platforms. Then, to obtain a wider perspective and validation of the results from the qualitative research, I will conduct a simple survey quantitative research to find out the numerical value behind the results of the interview results, simply to say, to find out how many people agree or disagree with the preliminary conclusions and questions from the qualitative research.

The study will focus on a well-educated audience since this is the audience that voluntarily agreed to participate in the study, the survey might include also less formally educated audiences, since the survey was distributed on the internet and social media forums, in order to acquire a large number of responses, and since the answers are anonymous, we can conclude that we have a mixed audience, that does involve DP and uses them in the daily life. Many have also given an open answer and described their feelings on the DPs and how they affected their lives.

The thesis is written in 9 chapters and in this chapter, I am introducing the topic and the research framework, along with the specific research questions that I will target my research to answer. In the 9<sup>th</sup> chapter, I will create a small guide for the Digital Platforms providers, on how they can improve the User Experience, of their users, taking into account all of my research findings and the conclusions I drew from them.

The thesis will not cover the influence of Digital platforms have had on the political situations across the globe. The research will focus on the daily use of the end-users and the effect Digital platforms have on their life, explicitly after the pandemic of Covid-19 have started.

## **2 Research questions and methodology**

The pandemic has changed the way users approach digital platforms and services; these services have become the core of how people interact with the outside world. People are working online, shopping online events more, and they are communicating and entertaining online in an accelerating manner. If before the pandemic experts were warning about how It is unhealthy to be spending most of your time online and avoiding social contact, now it is highly promoted because this is the less of the two evil. People who were not aware of the potential benefits digital platforms can bring to their life are now discovering how much easier it is to handle paperwork, communicate, and shop online and through using digital services. And especially during this time contextual design is one of the key performance indicators companies should look at, in order to reach a better user engagement rate. Users will always choose the platform that is easier, faster, and recommended by word of mouth. And the product gets the recommendation of words of mouth, only if it meets all the criteria of heuristic design and user-centered design principles, which are: Design for the users and their tasks, flatter learning curve, relevant information that is essential for task completion, Reduce unnecessary mental effort by the user, adequate feedback, adequate navigation mechanisms, the user feels in control, clear information, user assistance, error-free UX (Obear, 2017.)

The research questions I will investigate in this thesis are:

- What emotions and feelings impact online user experiences when using a digital platform during a pandemic?
- What are the users' needs nowadays? And how are they different from pre-pandemic times?
- What companies can do to address the new needs of users in terms of UX design?

### **3 Theoretical framework**

The thesis work is researching the shifts and changes that have occurred during the pandemic in the User Experience among digital services. The research will include platforms from the category of Social media, Online shops, Search engines, and Service-oriented platforms. Therefore, the first part of the research is dedicated to a look at the current situation, what changes have occurred already and how did the digital services respond to these changes. Important to note that not many studies have been conducted relating to the topic of UX and User behavioral changes since it is such a new topic and UX and Usability experts are only now starting to address these issues and publish recently made articles on the subject. According to the article, for example, nngroup.com, "COVID-19 Has Changed Your Users" by Kate Moran, recently published and also from personal observation, we can see a shift in the way people use social media as a source of information and that the official governmental offices, for example, THL, have made it easier for accessing information for people online and in their own platforms and for that they have a whole department dedicated to digitalization and accessibility of information (Finnish Institute for Health and Welfare (THL), Finland, n.d.).

In the second part of the research, we will investigate how the user feels about their usage habits, have they shifted, and have the user adopted a new pattern of behavior. The research will present the findings of qualitative research which is conducted in the form of interviews, and the quantitative data which is collected through the basic survey method. And as a result, enough data and analysis were conducted to form the preceding conclusions.

#### **3.1 UX design and Usability in Digital services and platforms**

According to Stephen Watts, the definition of digital platforms are a place where user can exchange information, tangible and intangible valuables, and receive services in exchange for money or ad revenue (Watts, 2020.)

We have a digital platform so embedded in our life that we are considering them in our daily schedule without even considering that the comfort that they provide is completely digitally based. According to Stephen Watts the digital platforms of today are taking form in a few of these categories:

- Social media platforms (e.g. Facebook, Twitter, Instagram, and LinkedIn).
- Knowledge Platforms (e.g. StackOverflow, Quora, and Yahoo! Answers).
- Media sharing Platforms (e.g. YouTube, Spotify, and Vimeo).
- Service-oriented platforms (e.g. Uber, Airbnb, and GrubHub).

(Watts, 2020.)

On the other side of the coin, we have the Digital services, and many mistakes these two terms as one or of the same meaning, but according to Fadi Stephan, digital services are what the digital platform provides virtually via the internet or an electronic network, and this is an automated process designed to involve minimum human intervention (Stephan, 2016).

When we think about the digital platforms we use daily we rarely think of the design process behind the scenes and the cumbersome process that is behind the stage of us acquiring the platform and receiving the service it has promised to us as consumers.

The stage that determines how a platform will deliver a service and all the nuances and details that come with it, is the UX (user experience) design.

UX design methods will determine how the end-user will perceive the platform, the concept of perception is very crucial in the UX design process. The brand that is providing the platform wants to be perceived as reliable, and trustworthy. And it is the UX designers' task to make sure the user does not perceive the platform as difficult, unappealing, or complicated.

UX design has become a powerful tool in the hands of marketers, because when a user has a good and productive outcome, then the marketing department can save costs. As a result, many companies have started to combine the UX design into their business strategy, because the realization that all business efforts will go to waste if the end-user won't adopt the final product has finally sunk in.

Jaime Levy has embedded the term "UX strategy", in his early released book "UX Strategy, 2nd Edition", he describes this as the pre-stage that needs to be taken before starting the business strategy creation. UX designers should not be uninformed of the business strategy of the company that they work for, and the UX strategy stage is supposed to prevent that. This stage is for reassuring that there is a requirement for the digital services that the company is aspiring to provide. It goes deeper than marketing research because many times the digital platform that an end-user needs does not yet exist. UX designers need to determine the urgency of the end-user for an answer to their need, and how exactly this could be provided, in what manner and through what conditions. After that stage, the business strategy and the marketing strategy can be built around this. (Levy, 2020, Chapter 1)

Long gone are the days when a company owner demands a product to be produced out of his own volition. This is ineffective, infeasible, and creates products that no user would like to adopt into their daily routines, or practices.

Because UX design has proved itself as a useful tool in predicting the engagement level of a user, and to maximize it many companies have invested in UX/ UI design departments. As my teacher, Amir Dirin Ph.D., have mentioned to us in class during the Prototyping of Digital Services course, is that the last worker who gets fired from a company is

the UX designer (Dirin, Decemeber 2019.) Companies understand the value of a well-designed product. And many, when they hear the word 'Design', they think of something that looks pretty, modern, and in fashion. But that is only the tip of the iceberg because UX and Usability design is something that involves a lot of science behind it. The human factor and human psychographics, and user segmentation. The UX design research patterns in behaviors in order to deduct from those observations, a solution that can make a process, faster, cost-effective, comfortable, and fun.

It all boils down to creating not the most beautiful product, of course not a rappelling one either, but a thin balance of qualities makes a product into a platform.



Figure 1. One of the first beta pages by Google (blogoscoped.com, n.d.)

As we see what google did (Figure 1), they offered not the most beautiful product on the market, of course, there were more beautiful and graphical websites. But google figured that the Internet is a new thing, not many know how to use it, and the straightforward search bar, with two buttons, was a road to success.

So how did it all start with User Experience, and how did it become a field, and one of the most important ones, in product development.

According to "The UX Book" By Rex Hartson, Pardha S. Pyla, the UX design has started it's way as a theoretical concept called Contextual Design or User-centered design, this was an innovative practice to put the user in the center of the software product development and conduct a contextual inquiry, and to define the human-computer interaction. The contextual inquiry is interview-based research of the qualitative insights the user might give us as a result of using the product. (H Rex Hartson and Pyla, 2019, pp.125–128.) In the early 1980s, Karen Holtzblatt and Hugh Beyer have first started to implement a user-centered design methodology. They created efficient cooperation between psychol-



ogy (Karen) and development (Hugh). If the product is developed for humans, why not explore the psychographics of a human mind while interacting with the product? Karen Holtzblatt has introduced the idea to use qualitative analysis to analyze the emotional and psychological responses of the test users. (Holtzblatt and Beyer, 1997, p.21)

At around the same time, Donald A. Norman has created the term “User Experience”, he invented the term as he saw this field as a form of science. The way a user is interacting with a product is the exact kind of relationship that should be researched and utilized in product development to its full potential. The UX is focusing on the way a user is interacting with any kind of product, and it hopes to create a loyalty-based relationship with the product or the company that produces, for the customer(Armstrong, 2020).

Although the deepening in the design field, beyond the aesthetics of a product, into the human behavioral and psychological aspects, was existing before Donald A. Norman has embedded the term, he is still considered the founding father of the movement and the concept. The UX process utilizes contextual inquiry and research methods in order to achieve an understanding of the emotional aspect and the behavioral aspect behind the process of when a product is used, adopted, or rejected by a customer (Userpeek.com, 2020).

Even the Feng shui, which comes from the ancient Chinese philosophy of organizing the home in harmony with human’s own behavioral patterns and habits, is considered to be an ancient form of UX (Wang, 2016).

The contextual design was mainly used when producing software products and for human-computer interaction design. The products in this field were very expensive back in the early '80s and this industry was considered a luxury product provider. Because of the specific demographic that was considered as the target user, who were not the majority in the market who could afford software or an operating system, companies have started to try and expand into the middle-class demographic starting from providing software to offices and introducing a home-based computer.

More and more the industry has started to develop and boomed after the release of the Windows operating system in 1983 (Microsoft Windows History, 2019).

This new flow in the design world was very poorly used, mainly this process was used to determine customer satisfaction but only after the product was already released, which could have caused a big loss of budget. With time and with early 2000, contextual design has started to be more and more valued, because the web platforms have started to arise, and web design was one of the niches that boosted the popularity of contextual design. A website is such a unique product, it is intangible, and we can modify it and change it while the product is used by the end-user. It’s as if a designer would tailor the shirt to the customer while he wears it. The only problem is that web pages are free, a user can easily exit them and never return.

This is where UX/UI design came to the scene, there was a demand for a process that would establish a user engagement that will intrigue the customer, and make the customer enjoy using a digital platform. (Holtzblatt and Beyer, 2010).

The initial form of the UX methodological process is in a form of a waterfall (Figure 2), but because this is contradicting the contextual and user-centered design in the field of digital platform development in modern times, this has been converted into a lean and agile methodology (O'Reilly Media, Inc., 2016) see figure 3. Of course, the Waterfall model has been used frequently in the '70s (Rovce, 1970) and is still used in other industries, that produce tangible products and a waterfall workflow is a must in this case (Armstrong, 2020).

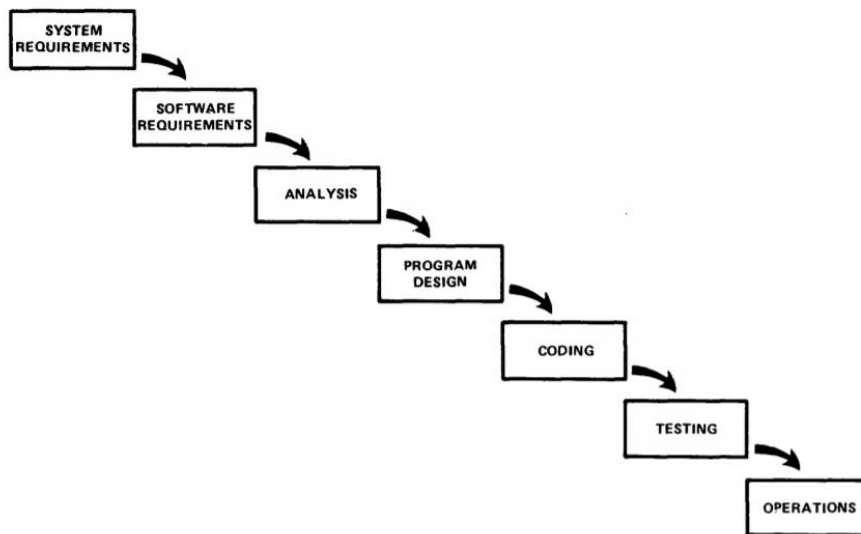


Figure 2, Implementation steps to develop a large computer program for delivery to a customer (Rovce, 1970).



Figure 3, lean UX process, (O'Reilly Media, Inc., 2016)

### 3.2 The pre-Pandemic situation of the Digital service design

Before the Pandemic the situation in Digital service design and user-centered design was slowly going forward, and remarkably so, many companies have noted that UX strategizing is one of the best investments they can make in order for the product to succeed in the market and gather an audience.

In my research I have gone to Google News and have dialed back the news about UX design back to the end of September 2019 till December 2019, these dates were chosen, as the last news about the design industry in the digital platform field (see Figure 4).

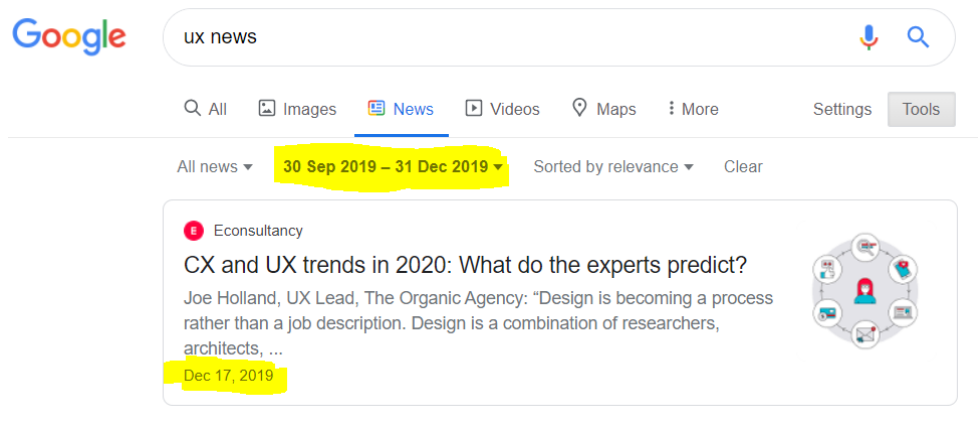


Figure 4, a screenshot of my search tools

Needless to say, that according to the articles I have read that were published during that time, were predicting a very optimistic future for the user-centered design industry.

According to Andy Budd, founder, Clearleft, who was interviewed for Econsultancy, has mentioned that back in 2019 the Design field has finally earned its seat at the decision-makers table, and a valid one (Davis, 2019).

The truth is that the market has understood that the future can be malleable if the company pays enough attention to what the customer is trying to communicate, indirectly. Often times companies are actually deceived but the customers' feedback, and by following it they actually fail to supply what the customers need. In user-centered design, the key is to notice a pattern in customers' behavior, something that oftentimes even the customer itself is unaware of and cannot elaborate about.

The customer is often time is vague, for the reason that customers do not feel obligated to supply feedback. And no one wants to feel like they must write a report about their every decision. The customer lets the company know that something went wrong, only after a big failure of the product in the customers' eyes, and by that time it is a bit too late to save the product's reputation.

Customers that just simply "didn't like" the product will not go out of their way to let the company know that something went wrong, they will just quietly abandon the product and

move to the competitor. And In these cases, which are frequent, we have to pay attention to the psychographic behavior patterns, since a customer can abandon a platform just because the colors were too bright and unpleasant to the eye. If you ask the customer itself why the platform did not get adopted by him/her, he/she will just mention that it wasn't comfortable. In order to acquire useful insights, user testing should be implemented.

What the experts are predicting for the contextual design in the services field is a complete change in the way the industry works (Marin, 2020). We see that everyone sees the future in AI and machine learning, but in order to capture the insights, you have to have a human brain. Sure we can use AI and machine learning to document the patterns and data, and also analyze them, but to make the right design and business decision, we have to have a good team of skilled designers that will lead the UX strategy of a business and services (Alexopoulos, Hudson, and Otenigbagbe, 2020).

In the Job market back in 2019, many were actually willing to change their career into UX/UI design. The majority of those people are front-end developers and a background in programming is a big plus in the contextual design field, as well as a background in psychology, which can be very useful. Many have published articles on how to enter the design industry and which tools are the most useful in this area. Since this profession doesn't have a specific degree program that needs to be acquired in order to enter this profession, many can refer to free online courses that teach all the needed tools to become a UX designer. Many people feel like this needs an outlet for their creativity, and many front-end developers end up as UX designers because they feel that they can give a stage to their creative thinking.

(Chawla, 2019).

What advancements were planned in the field of UX design before the pandemic? The industry has looked towards Acquiring data analysis software and platforms and use machine learning in order to analyze the data as efficiently as possible.

According to Alex Robbio Forbes Councils Member, one of the main goals that were executive of companies wanted to obtain back in 2019, was building competitive differentiation. In this Article, Alex Robbio brings the example of Apple company. Despite many years of producing overpriced products that are mediocre in performance, and despite the competitors that produce much more powerful and cheaper products, Apple still remains as one of the biggest technology companies in the market with a market share of almost 30% in the smartphone, tablet, and console in Europe (StatCounter Global Stats, 2020).

The loyalty of the customers towards Apple has an emotional and a status symbol. Many have adopted the Apple products because of the legacy of Steve Jobs (Smart advantage inc., 2011), as one of the most brilliant minds of the 21<sup>st</sup> century, and the luxuriousness of these products maintains the level of loyalty. The UX design is at the core of this loyalty.

The users just simply enjoy using their products, and they also love to show their status by owning one of the products made by Apple. Creating pride among customers of using the products, can be accomplished by engaging the whole company into the UX design and not only the design department. Everyone must take part in the way a customer engages with the product (Robbio, 2019.)

In order to obtain customer loyalty, that despite anything customers will still purchase the product there has to be an added value that the UX design can provide. Apple, as in the example above, has done many risky things. Starting from producing a phone that 90% is retina screen, which was unthinkable back in 2008, and from recent news the latest iPhone is sold separately from the charger. There was a public outcry about it, and now it is too early to say whether Apple will withstand this because due to the pandemic, the customer became more aware and more demanding.

According to customerthink.com, back in 2019, executives started to realize that UX is the key to create competitive differentiation, and back then this was one of the biggest forecasts for the future of the UX design, that it will become the root of a whole base of a company and now just a department or one designer for the whole firm. The UX strategy of the business provided a clear roadmap to the hearts of the customers, and also their loyalty to the brand. Whether it is a tangible or an intangible product, the ability to create a relationship with a brand has to be offered to the customer through putting the customer in the center of attention (customerthink.com, 2019.)

### **3.3 Covid-19 and Digital services**

The Coronavirus disease 2019, Covid-19 for short, is a very contagious respiratory and vascular disease. At the beginning of my thesis research, the virus did not have a vaccination against it yet. The vaccine was urgently approved by the World Health Organization on 31 of December and the EU have approved the Vaccine by a company called Moderna on January 6th (Corum and Zimmer, 2020). The contagiousness and the long wait for the vaccine have caused the virus to spread from human-to-human and create a worldwide health threat. The incubation period of the Covid-19 is officially between 10-14 days (www.who.int, n.d.).

When people are infected with the virus, they oftentimes do not experience any symptoms and this fact has contributed a lot to the spread of the disease, and the cooperation from countries and governments was very poorly organized. Back in March Covid-19 was officially named a worldwide Pandemic by the world health organization (NPR.org, 2020).

The disease is more lethal than seasonal flu. 0.1% die of flu, whereas from Covid-19, 3.4%(Secon, 2020).

All these data have created the reality we live in today. People must maintain social distancing and personal hygiene in order to create a flatter curve of the infected population. The Pandemic has been a very confusing time for businesses and their future plans, no one has anticipated such a drastic change in the economy, consumerism, and financial stability of whole continents (Heymann and Shindo, 2020.)

Although the signs of the pandemic were coming to warn, it's as if no one wanted to believe that the whole world economy can be shut down like this. And still today we see signs of this denial, many still refuse to wear masks and obey the regulations on social distancing (Leung et al., 2020).

Digital technology has been a lifesaver for the economy as well as for public health, many were able to retain their employment thanks to the ability to work online or digitally (Ting et al., 2020).

The digital transformation, especially in workplaces have accelerated for the reason that many had to convert into remote work model. This created issues for people with maintaining a household, take care of kids, and doing chores. The work has intruded into our livelihood, and without asking us for permission.

People that were "lucky" and educated in the fields that allow them to conduct work from home, had to implement a whole new time management model that did not interfere with their daily activities. Not many governments provided a solution for people with kids, people who have to take care of a disabled relative, or any other obstacle that might affect their productivity while working from home.

Working from home, even the term itself sounds like a dream job. Society perceives it as if people just get up in the morning, cook fresh coffee, and check emails on their laptops while listening to the birds singing outside their window. The reality of this is very far from fantasy (Nagel, 2020.)

People who were lucky enough to start working from home, often face the other side of the medal. And the last thing that they want to deal with is a problematic network connection, not functioning laptop and a lousy designed digital platform that does not allow the work to be done smoothly and in less time.

Many professionals have changed and converted to newly invented platforms just because their design and UX were much better. People want to prove their productivity; they are more stressed about performing at home than when they were in the office. So, the last thing they want to deal with is a lousy platform that does not give them the desired deliverables or makes it tedious (Experience, 2020.)

What is the role of UX design during the Pandemic? Designers are actually the key personnel that can help the world to combat the virus and its spread. If the designers would

apply their skills in research, human behavior study, data gathering, and gathering of requirements, this knowledge can be vital in helping professionals such as doctors, nurses, psychologists, etc. to do their job better. During the Covid-19 pandemic, many countries have realized that they are nowhere near being prepared for such a pandemic, or any other crisis for that matter. Developing countries, that have a low educated population cause a threat to the world's situation, because these countries may contribute to the virus continues spreading globally. These countries do not test their population as often, and we cannot estimate what is the situation currently (Almeida-Espinosa and Sarmiento-Ardila, 2020).

Many countries have tried first and foremost, to stop the spread of misinformation, because this worsens the problem. When a poorly educated population starts to believe the fake threads of information, due to lack of knowledge in the field of medicine, hygiene, and science, this causes either unnecessary panic or dangerous apathy.

People have committed suicide because they did not want to die from Covid-19, this has happened in a poorly educated population, and such outcomes are tragic results of low development in the regional areas in developing countries (Utkarsha and Khan, 2020).

Designers have helped tremendously in reaching every layer of the population and spread the correct information, correct way of conducting personal hygiene, and how to obey the self-isolation rules. Designers have also helped to provide a solution to governments on how to provide the poor populations with food, medicine, and basic needs, because they are cut off by any means, due to them being forced to stay at home. The data that the designers are experts in collecting, can be utilized in the best way on providing medical and financial aid, in populations that have been affected the most during this self-isolation period. All experts that can provide value in the medical aspect, aspect of mental health, and education, in order for them to reach the end-user, will need the help of data scientists, researchers, and product designers. There have been many ideas offered, and one of the most popular ones right now is when celebrities are showing on their social media how to wash hands correctly and encourage them to stay at home. People look up to them and their fans will listen to their advice (Welankar, 2020).

Many celebrities have actually provided their social media platforms to virologists and medical experts so that they can have a platform for educating the general public, the project was called "Pass the Mic" (Celebrities "pass the mic" to COVID-19 experts, Deutsche Welle, 2020).

In order to help populations that were already in need before the pandemic, like the elderly and people with disabilities, designers can create platforms, apps, and web platforms that inform the young population about a person in need in their neighborhood. A person who needs help with obtaining groceries, paying bills or paperwork, etc. This also

can bring people “together” despite the isolation. We have to remember those people in need who have been cut off their nursing help, due to the shortness of staff in the hospitals.

In order to create a balance and provide an infrastructure for the experts to help the general public, there are many things that designers can do, conduct research, conduct interviews online via video calls and phone calls, analyze the data using AI and machine learning, and cooperate with data scientists to obtain the critical insights of the actual situation in any field (Welankar, 2020.)

Of course, we have to provide people with a reason to stay at home, as well. Cutting people from their source of income, network of friends and family without providing an alternative like Basic income that is provided by the government, provide poor people with basic computers or phones that have Internet access, etc. that is an investment that has to be made in order to restore the economy, raise awareness and the level of education in poorer areas (UNDP, 2020).

If we try and forecast the future of UX design, encouraging information transparency and critical thinking and the spread of educational and reliable knowledge has to be one of the main goals of UX designers globally, specifically, in 2020 (Teixeira and Braga, 2020).

Digital platforms, like social media, have already started to warn users about fake content, instead of erasing it altogether, in order to raise awareness among users that the existence of fake content is not mythical and in a situation of a pandemic or crisis, actually very common phenomenon, social media providers also marked the company or the organization behind the fake content that was published. This was done in order to publicly shame the misinformation spreaders and discredit their reputation (Newton, 2019).

In 2019 many platforms have encouraged the rise of fake beauty standards, deep fake videos, the spread of “click-bait” and misinformation. This was so popular the year before the pandemic, because websites and especially Google, wanted to increase traction and traffic towards their platforms, so fake content was actually more promoted by the algorithm on a platform like YouTube, Instagram, although the algorithms are top secret by the companies, according to the research by Maria D. Molina, S. Shyam Sundar, Thai Le, Dongwon Lee, the platforms have corrupted the taxonomy of internet content by allowing the algorithm to navigate the audience towards ‘viral’ content, without viability check, and this has created a non-even distribution of the internet traffic (Molina et al., 2019). Users were drawn to this kind of content, and despite the misrepresentation of reality and truth, the reputation of digital platforms as a reliable source of information grew.

And when the pandemic happened many platforms suffered an explosion of fake content, fake news, misinformation that had tangible and hurtful results. It has caused panic, tragic



events, and horrible turn of events. It has influenced many to spread hate online, and racial hate speech has increased during the beginning of the pandemic (Benier, Bonotti, and Collings-Hall, 2020.)

Platforms are now trying to fix the damage that was done back in 2019, and many big companies are trying to remedy the situation they have caused. Adobe has now created a feature that exposes whether the image was tempered and edited or not, that same company that created photoshop, has now created the antidote for distortion of reality and images (Vincent, 2019). The ability to return the trust of the customer back lays in good UX design. Bringing back usability, where the end-user can educate themselves truly through reading information online is one of the main objectives of UX design. The way people are using social media platforms has changed, people value now more educating content rather than entertainment, that's why it was smart for many celebrities to provide their audience with experts opinions and their knowledge on the subject of Covid-19 like I mentioned before. But many celebrities did not adapt to the new user-audience behavior, and despite the pandemic, decided to show off their lavish lifestyle and demonstrate how affluent, and detached are they from reality and their audience (Hess, 2020).

The class difference is very tangible nowadays, people realize that there they are in need of equality and platforms that will provide them with reliable content. The economically guaranteed, people who still have saving, the affluent and the ones who are capable of continuing working from home, are not the target audience of the UX designers in 2020, because the economically guaranteed have remained loyal to their digital platforms, and their life did not change drastically except the way they consume entertainment and how they spend their free time. The main focus of UX designers needs to become the ones who have no other source of income besides their daily job. They are the majority of the global population, and if designers will not provide them with platforms that will allow them to educate themselves, continue earning income, and affordable entertainment, we will not combat the pandemic. Before the pandemic started, the loan culture was popularized, taking a loan became too easy. People ended up taking huge loans with very high-interest rates, they did not expect to lose their job in one night. And this has brought us to our reality where the ones who lost their jobs and have no alternatives, are the ones that are indebted to the banks (Yle Uutiset, 2020). These people are prone to refer to criminal activity just to make their ends meet and to sustain their families (Ehling, 2020). Therefore, providing these people with reliable information, access to expert opinion, access to online education, and the opportunity to work and earn from home, is essential, and the UX designers are qualified enough for the task (Accattatis, 2020).

What will change in the community of designers, is that the popularity of small groups will rise. The way designers networked before was through meeting at conventions and organizing big globally available events, online and on-premises. Nowadays people from

small groups on Slack or Facebook, and even those become abandoned the moment they lose their intimacy and become a self-promotion platform instead.

People in the design industry have started to value personal interaction with other professionals, where they can share experiences, tips, and useful tools, in order to solve problems and create new solutions. The value of friendly advice will rise, and even now, small online events are held on platforms like “Eventbrite”, “meetup.com”, for a small payment in order to make participants commit to arriving, and participants are willingly paying. It is a small price to pay for a piece of valuable advice in an intimate community. The intimacy and the possibility of asking about all the small nuances and getting the actual answer that we are looking for make the small group meeting among designers into the way the industry professionals cooperate and network with each other (Teixeira and Braga, 2020.)

## 4 Empirical part- Description of the research framework

The pandemic has proved that User behavior is not static, and it is fluid and changes very rapidly. The UX and Contextual design were not ready for such a quick shift, and the only shifts that they were predicting, before the pandemic, were due to the change of generations and of course the change of technological capabilities. No one anticipated changes to happen in months and so drastically. The Shifts that happen were not recognized first. The platforms that people use on a daily basis did not even prepare for the amount of online user that they will have, and as a result, many platforms, online shops, video call apps have crashed, because the whole global population was now present on the web, at the same time (Pinkstone, 2020).

In order to maintain the further development of UX design and user-centered design, more research has to be conducted now. All designers need to group and create a hub that will research such huge, rare, and scary phenomenon as the pandemic.

The way we maintain the crisis right now is through online platforms. We work online, we shop, we communicate, we consume entertainment, and because online platforms became the center of our life, UX design has to take a major role in improving, innovating, and progressing the use of digital platforms for remedying the current global situation. The research in the field of User Experience and Usability of digital platforms has to be divided into the segmentation of behavioral aspect, psychographic, demographic, geographic, and cultural. All these are used when market research is conducted but we have to maintain the loyalty of the research by covering all the aspect of market segmentation and applying it to a digital platform used in the time of the pandemic, and how are they affecting the UI design, and how it can be improved. What the new population needs in order to integrate more smoothly into the virtual lifestyle of being (Experience, 2020).

In order to research how did the user behavior change, I will be conducting qualitative and quantitative analyses. Firstly, will come the qualitative analysis, I will interview users of digital platforms to indicate how did their usage habits change, have experienced a shift in preferences, and did their demographic background had an influence. The Interviews will be conducted via video call and the questions will be personalized according to the conversation, this will allow a clearer picture of the preferences and the changes that occurred in the users' behavior during the pandemic. The questions will be structured according to the principles of qualitative research. (Lapan, Quartaroli and Frances Julia Riemer, 2012, Chapter 3)

## **4.1 Qualitative research**

The research that I decided to conduct first was qualitative research, and the reason for that being is to understand what is happening in the real world and from the perspective of the end-users. I had a feeling that even though it seems as if the world is in havoc, the reality is a bit different and that is why I decided to conduct interviews.

Qualitative research is the gathering process of unstructured data, and in order to derive a required insight from it, we find different methods to structure and analyze it and give it meaning. Meaning is the last resort that any data analysis is striving to achieve (Martyn Hammersley, 2013).

The 'qualitative research' expression was embedded in the '60s to emphasize the difference between this type of data to the quantitative one, which represented the main method of gathering the data that was collected and processed (Martyn Hammersley, 2013).

The history of the qualitative studies goes way back into history and can be found to be documented in the mid-nineteenth century by Wilhelm Dilthey, a German philosopher, and he used the term "Verstehen" which from German means "to understand" (Lapan, Quartaroli and Frances Julia Riemer, 2012b).

The research was conducted according to the instruction in the book "Qualitative Research: An Introduction to Methods and Designs" by Lapan, Quartaroli, and Frances Julia Riemer. Also, in order to conduct the research in the most ethical way possible, I used the SAGE handbook of qualitative data collection. The principles that have guided me in ethical research of the data are credibility, transferability, dependability, confirmability, authenticity. These principles allow the Reader of the research to trace back the source of the conclusion among the provided evidence, provide a chain of events and conclusions, demonstration of evidence that can confirm the hypothesis, and also the data that can dispute the original conclusions that provide a fair view of multiple perspectives (Mertens, 2018).

## **4.2 Conduction -The Interview processes**

The candidates will be approached via emails or through direct connections, to ask them to participate in the research. The candidates will be present with the set of bullet points that will be asked during the interview, the questions will be personalized based on the conversation and the segmentations of the participant. The participants will be notified that the interview will be recorded, and their consent is required. All participants will remain anonymous, the only details that will be disclosed are, age, professional background, educational background, and gender.

### **4.3 Quantitative research- Basic survey**

Quantitative analysis will be conducted using the platform Google forms, and the data will be analyzed there as well. I am using Google forms because people are more familiar with this survey type of platform, and they trust it more. And the UI of this platform is very comfortable for me, also because I have good experience using it. The Basic survey questions are based on the findings of the qualitative analysis that was conducted prior.

The purpose of the quantitative research is to determine the numbers behind the subjective statements that were concluded in the qualitative analysis, and to configure the relationship between the statements and the situation in the real world, and to examine possible impact and influence and their scope of distribution and popularity. The qualitative research aims to determine the experience of the users and the shifts in these experiences due to the pandemic, and the quantitative analysis will determine the numbers behind the experiences and how common and frequent they actually are (Rea and Parker, 2014, Chapter 2).

## **5 Research implementation and results**

In previous chapters the thesis has mentioned the economically guaranteed population, which are the main consumer of digital platforms nowadays, they maintain their employment through online tools and retain their financial security through the use of digital platforms. They consume entertainment and have more freedom in their financial choices. Although I would like to research the poor population and the impact of the pandemic on their behavior through digital platforms, they are unfortunately not the main consumers of digitalization and are now only making baby steps to integrate into the online world.

Among them, there is the elderly population, and people with disabilities that prevent them from using online platforms to their full potential, and people who are from a poor background who are not educated enough or have enough resources to afford access to digital platforms. These people are the majority of those who were affected negatively by the pandemic. This is an issue that needs to be solved by data scientists and UX design experts with the cooperation of governmental support and funding, and I made an emphasis on that matter in the previous chapters.

The target users' profile of my qualitative study will be an audience that has retained their financial stability through working from home, they use digital platforms to further educate themselves, they shop online, meet with friends via online calls, and consume entertainment like music, streaming services, and online events.

The target audience of my research is in the working-age 18-60, preferably still employed through online work, and are using digital platforms in their daily life or for career purposes and have attempted to increase their education via online courses and certificate programs.

### **5.1 Qualitative research implementation -Table of the participants**

The participants of my qualitative research are the average users of the digital platforms. To me, it was important to find the most diverse group from the standpoint of gender, and nationality, in order to have a bigger outlook on the situation and the user behavior in different digital platforms. The anonymity of the participants was guaranteed and there are presented by a participant ID number P1-6 (figure 5).

Participant ID	Gender	Age group	Academic background	Employment status	Nationality
P1	Female	25-40	Student	Intern	Eastern European
P2	Female	25-40	Master's Degree, student for Bachelor degree	unemployed	Asian
P3	Female	25-40	Bachelor's Degree	Intern	Eastern European
P4	Male	25-40	Master's Degree	Full time	Northern Europe
P5	Male	25-40	Bachelor's Degree	Full time	Northern Europe
P6	Female	25-40	Student	unemployed	Western European

Figure 5. The user profiles of interview participants

The users that were selected for the interview are with a background in the Information technology field. Participant P3 is studying to become a UX designer. Other participants do not have a background in Usability and design. I have selected them because of their frequent use of digital platforms in their daily life for work, study, and leisure time. These participants represent the main target customer group of digital platforms, and they are most impacted by changes in design and usability. And since there are literate in technology, they can express better in an interview setting, the reasons behind their choices of digital platforms, their use, and habits.

## 5.2 Interview with the participants

The participants were found by contacting people in my circle and out of it, to reach the vastest and diverse amount of people. All the participants that took part in the interviews are currently residing in Finland. Through work or studies, or because they are native to Finland.

In order to receive the specific information, in each answer, The formulation of the question had to be as specific as possible. The interview's structure was a Problem-based interview method. This method allows the interviewee to imagine themselves in the situation and then reflect upon their own life and decide whether this metaphor or an example of a problem from real-life events, applies to their own experience. In order to maintain the viability of the answers and prevent the participants from turning on their imagination and answering from an imaginary standpoint, the interview led the participants in the direction of empathy and identification of their own truth by describing a real example from the media of a situation that occurred as a result of the pandemic, and they were asked if they had a similar experience and if not then how would they behave, and whether it reflects their own experience and opinion. In order to research this method, I used "The Problem-Centred Interview: Principles and Practice" by Witzel and Herwig Reiter. PCI method of interview allowed the participants to realize that even though I am describing a problem to them, this does not mean this problem is applicable to them, and therefore they are like

outsiders looking in and can answer my questions objectively (Witzel and Herwig Reiter, 2012).

I have prepared an official invitation for each participant. The invitation included an introduction to my thesis and what is my objectives. I also described hypotheses that I wish to confirm or dispute with research, I have given an example of how digital platform have changed through my personal observation and given a screenshot from the social media “Instagram” and how their layout changes in order to cater for the official information about Covid-19 to be on the front line and accessible to the public. I have also included the questions that will be asked in the interview, and the statement that the interview will be recorded for transcription and qualitative research purposes. All the participants were made aware that there will remain anonymous, and only their gender, age group, academic background, and nationality will be mentioned. The interviews were conducted through ‘Teams’ video conference, and the recordings of the interviews were stored on Microsoft Stream services provided by Haaga-Helia. Each interview lasted between 30-40 minutes, and we have discussed topics like data security concerns, digital services consumption patterns, financial situation, and digital platforms, mental wellbeing, and social life on digital platforms. During the interview I have not involved my opinion in the personal outlook of the participant to maintain the clarity of their experience and opinions, the only times I have provided examples, was when the participant was not sure to understand the question and asked for clarification or an example. I have studied the theory of conducting interviews and the PCI method to derive reliable data.

### **5.3 Interview preparation**

In order to prepare me and the participant for the Interview a document was created that describes the current situation of Digital platforms basing it on the preliminary research that was conducted to build the research framework for this thesis. This document has described what is going to be discussed in the interview, examples of UI change in the digital platforms, and the planned questions that are going to be asked during the interview. I have also mentioned that a new question may arise depending on the discussion and that this interview is semi-structured. The interview was direct and open for its purpose, the participants were well aware that the interview is conducted for thesis research and the questions were asked directly from the start (Brinkmann, Flick and Kvale, 2018, pp.63–66).

The questions that I have prepared are based on the research questions of this thesis basing it on the diagram from the book ‘Doing Interviews’ by Brinkmann, Flick, and Kvale, 2018.



My research questions:

- What emotions and feelings impact online user experiences when using a digital platform during a pandemic?
- What are the users' needs nowadays? And how are they different from pre-pandemic times?
- What companies can do to address the new needs of users in terms of UX design?

These questions have determined the categories of themes that I have prepared.

I categorized the questions as follows:

1. The emotional impact of the shift to online lifestyle
2. Social, financial, and psychological needs
3. User feedback on Digital Platforms

After creating the categories I have started to formulate the questions by the example from the book 'Doing Interviews' watch figure 6 (Brinkmann, Flick and Kvale, 2018, pp.63–66).

Researcher questions		Interviewer questions
		Do you find the subjects you learn important?
Which form of learning motivation dominates in high school?	↙ ↘ ↗ ↘	Do you find learning interesting in itself?
		What is your main purpose in going to high school?
Do the grades promote an external, instrumental motivation at the expense of an intrinsic interest motivation for learning?	↙ ↘ ↗ ↘	Have you experienced a conflict between what you wanted to read (study) and what you had to read to obtain a good grade?
Does learning for grades socialize to working for wages?	↙ ↘ ↗ ↘	Have you been rewarded with money for getting good grades?
		Do you see any connection between money and grades?

Figure 6. Research questions and interview questions (Brinkmann, Flick and Kvale, 2018, pp. 66)

In figure 7 you can observe the research questions of this thesis and how the interview question was based on the category that the research question is related to.

Research Questions	Interview Questions	Category
What emotions and feelings impact online user experiences when using a digital platform during a pandemic ?	Did you use digital platforms before the pandemic, and in which category? -social media -search engines -e-commerce -communication -education	1. Emotional impact of the shift to online lifestyle
	Have you abandoned some of your regular platforms due to uncomfortable usability, and why did you abandon them?	
	What are the feelings and emotions do you experience when a platform is malfunctioning? Is it more frustrating then before the pandemic?	
	Do you believe digital platforms helped to stop the spread of the virus, and why?	
What are the users' needs nowadays? And how are they different from pre-pandemic times?	Do you trust digital platforms more now, than in the beginning of the pandemic?	2. Social, financial, and psychological needs
	Did digital platforms helped you to plan your finances more efficiently? -Did you plan your finances as diligently as before the pandemic?	
	Did you create an online community or joined one, for the purpose of feeling more connected? Did you participate in digital communities before the pandemic?	
	Do you feel like the isolation affected your social skills negatively, and did the digital platforms were able to remedy it?	
What companies can do to address the new needs of users in terms of UX design?	Did you feel like companies have addressed your needs in the digital platforms?	3. User feedback on Digital Platforms
	Did you start worrying about the security of your data and private information online, as a result of switching to an online lifestyle?	

Figure 7. Interview questions formulation

#### 5.4 Qualitative data analysis

In order to create an efficient analysis from the qualitative data, I used the QDA lite software, it is a free tool that is very useful in qualitative data analysis, this tool is important to use when analyzing interview transcripts and open-ended responses, to measure the frequency of terms in the answers and derive objective insights. I have entered the transcription of the answers to the interview and coded the most important phrases that represent the opinion of the respondent. I labeled each answer with the categorization that each an-

swer represented. And tagged it with the proper code, for further analysis. I used the content analysis method and have labelled each behavioural pattern with the corresponding code. In order to analyze open text and open answers by respondents, coding the qualitative data and dividing it into categories helps us to create an analysis and comparison of the provided answers, as well as insights and allows us to derive conclusions from the gathered data. It also allows us to create a visual representation of the data (Alyona Medelyan, 2019).

The first question was to kick-start the interview and to make sure that the participant was in the category of the target audience and ask about digital platforms in their daily life. As we can see all of them are using some sort of digital platform, and in the second part of the questions I wanted to establish which type of DP is mostly used by the interviewees, and the majority are using social media and for work/study purposes as the primary daily Digital platform (figure 8 and 9).

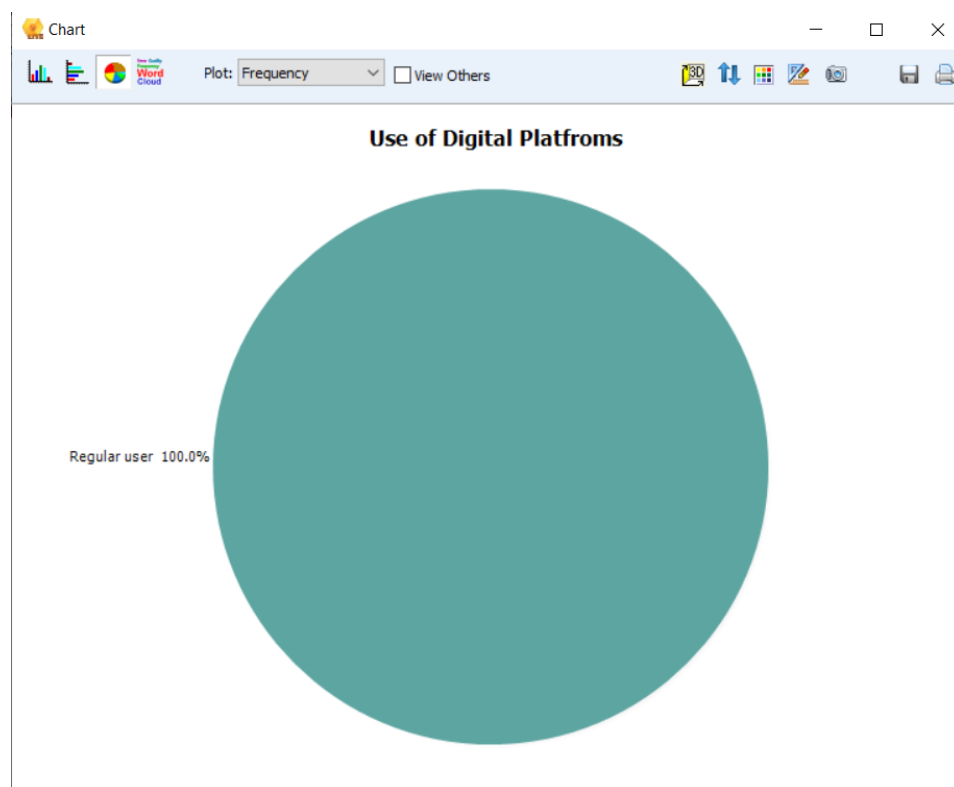
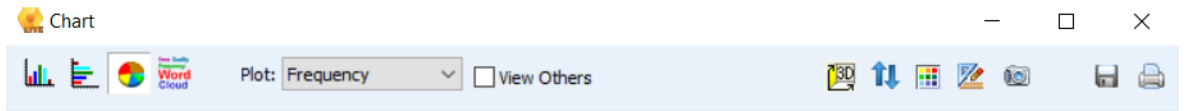


Figure 8. Q.1. Establishment of the presence of digital platforms in daily life



**Type of Digital Platforms most commonly used**

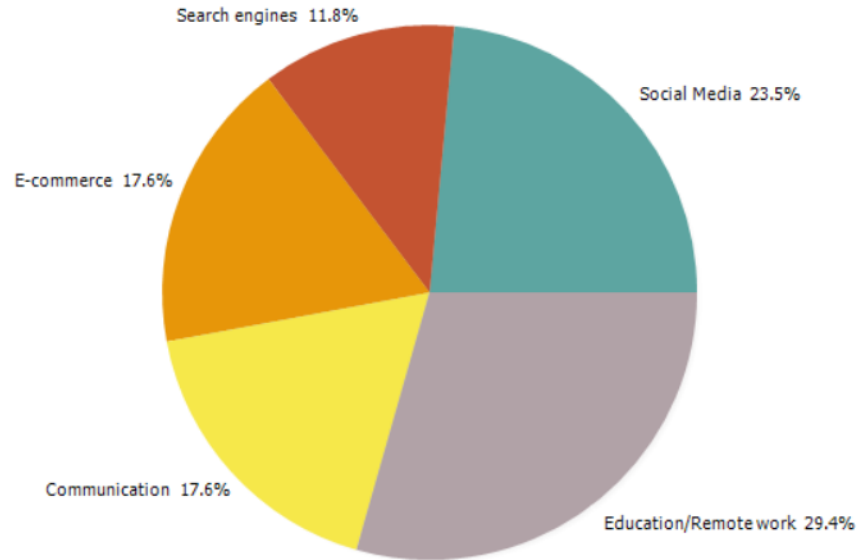


Figure 9. Q.1- part 2. Type of DP most used.

In the second question, I wanted to find out whether the speed, at which people switch from one platform to another, has accelerated during the pandemic. My question was based on the pattern that the use of apps has increased during the pandemic, to make our online life easier (Sydow, 2020). See figure 10.

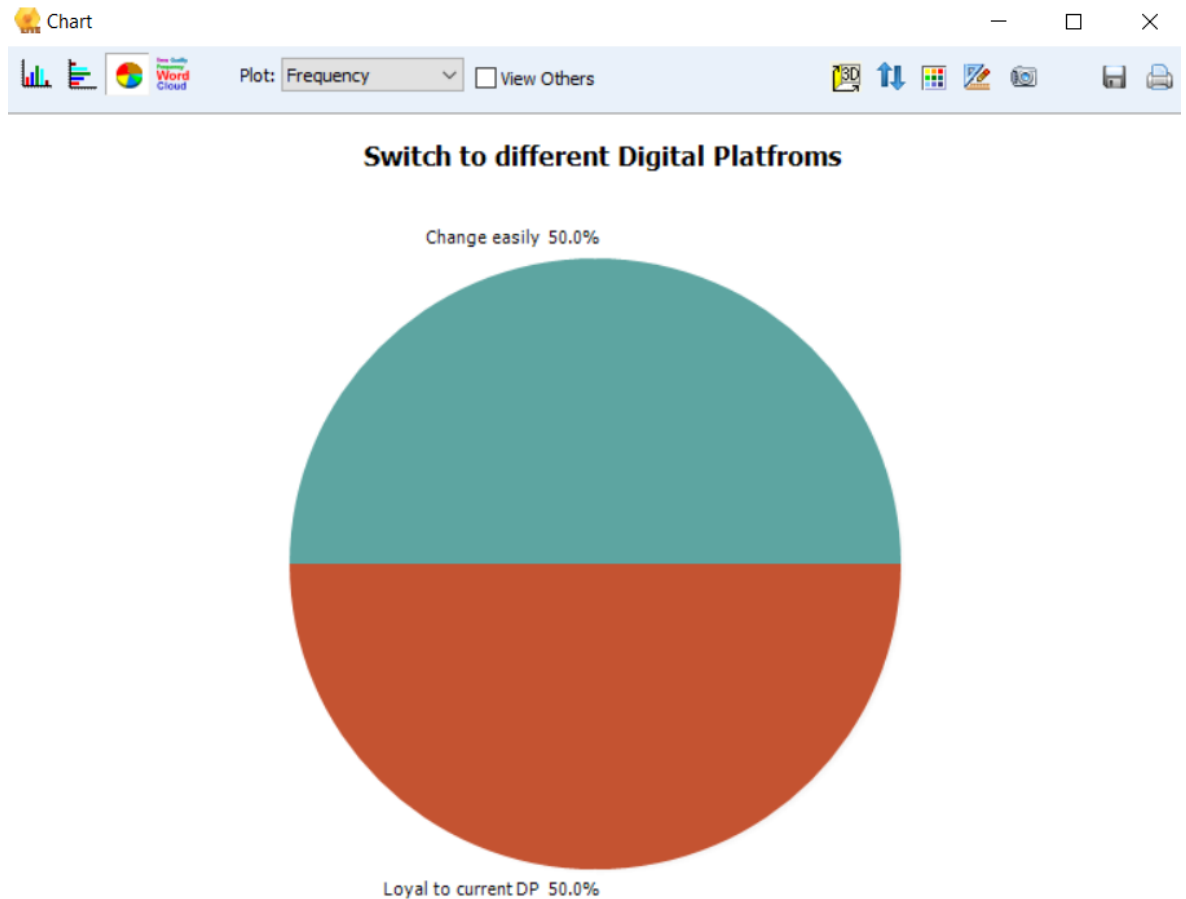


Figure 10. Q.2. The ease of switching to newer DP.

I wanted to understand whether the platforms that were used in the daily life of the participants have been abandoned due to the drastic changes in their lifestyle or an uncomfortable UI. Many have experienced a very minor change in their environment. And the participants did not perceive the digital platforms as a critical part to retain employment or manage their daily tasks. All the participants are residing at the moment in Finland, and since the situation of Covid-19 in Finland is one of the best in the world. Many have mentioned that their life hasn't changed much. They continue either study or work online. They are all using digital platforms in their daily life. The change in their pattern of usage wasn't as drastic as in other countries, because the situation in Finland is very stable.

Also, the fact the pandemic hit hard in March, meaning, not much time has passed to declare that there was a drastic change in the way users perceive the digital platforms. The market is fast, but in the case of the pandemic, the changes appear slowly, and even so the changes that will be drastic in the future take root in today's reality.

In the third question, I was trying to find out whether the online social life was able to substitute the offline connections and friendships, and whether the participants decided to rely on online communities to seek connection and like-minded friendships (figure 11).

As many companies have adopted the idea that creating an active community for the employees, will contribute to connection and productivity during the pandemic among colleagues (Verint, 2020).

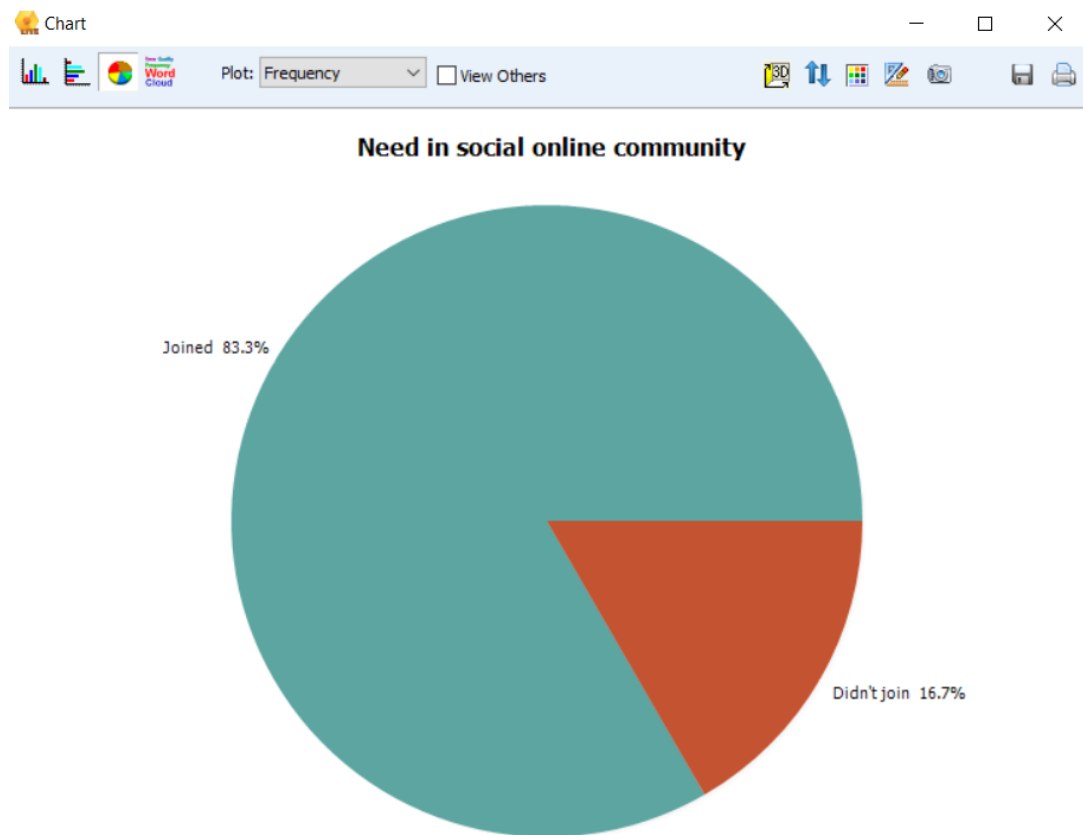
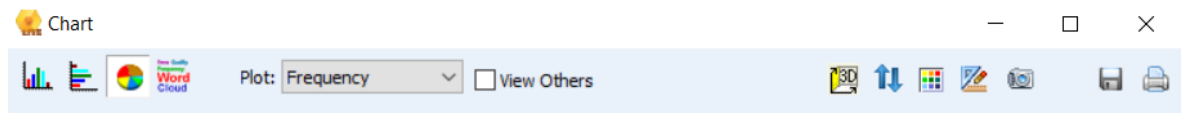


Figure 11. Q.3. Understanding the social life impact

The mental well-being of people can be impacted as well. As we are social creatures and even though many might assume that there are personalities who enjoy social isolation more than others, because of the slow pace and lack of big events, crowds, and social gatherings. But a recent study shows that the introverted people, who participated in the study are doing worse during the self-isolation. It is harder for them because they have a tendency to feel loneliness in a stronger wave than the extroverted people (Wei, 2020). There is a piece of evidence that social isolation, especially in this day and age when loneliness was a big problem even before anyone heard about the Covid-19 virus, worsens mental conditions that were already existed (Banerjee and Rai, 2020).

So, in the 4<sup>th</sup> question, it was important for me to ask whether the participants felt any impact on their social skills and social life in general, and have they noticed the lack of it (figure 12).



**Social skills after Covid-19 pandemic**

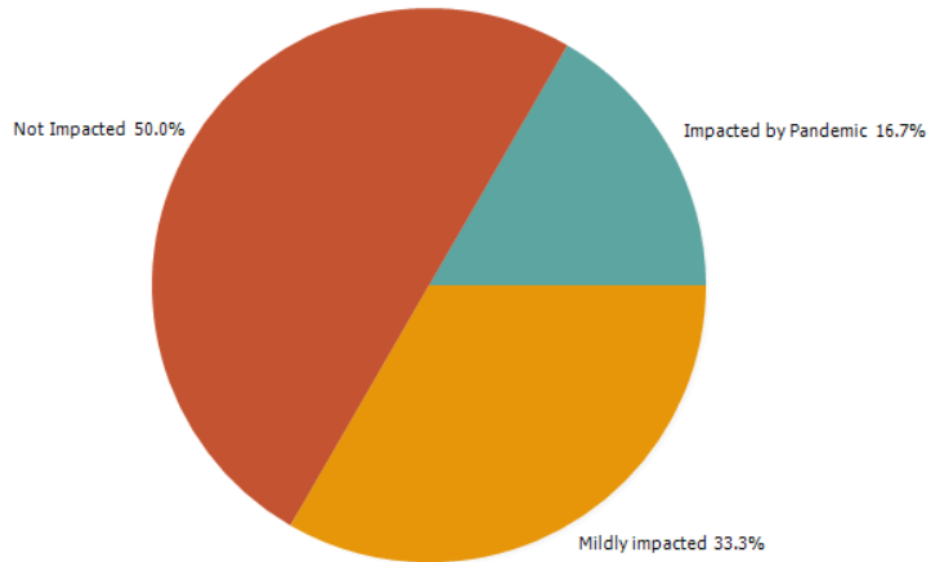


Figure 12. Q.4. Understanding the impact of isolation on social skills.

To my surprise, the answers were quite hesitant regarding whether the isolation affected the social skills and relationships in their life. It could be, that this question is quite private, and the participants did not have the will to share their experience, so it is hard for me to call this as a shred of evidence to prove that there is no impact on social life or only a minor effect among the participants. So, it is hard to interpret the real impact of social distancing on the personal relationships of the interview participants. One of the participants mentioned that in Finland the culture is quite isolated and distant, to begin with, so it is quite common to seek less human interaction due to the cultural aspect (Siitonen, and Olbertz-Siitonen, 2015).

The 5<sup>th</sup> question was about whether the participants consider the digital platforms as the savior of the pandemic, and whether the platforms made it easier for them to have safe isolation, comfortable lifestyle, retain employment and in general do the daily things like shop for groceries online, retain friendships, or consume entertainment from digital platforms (figure 13).

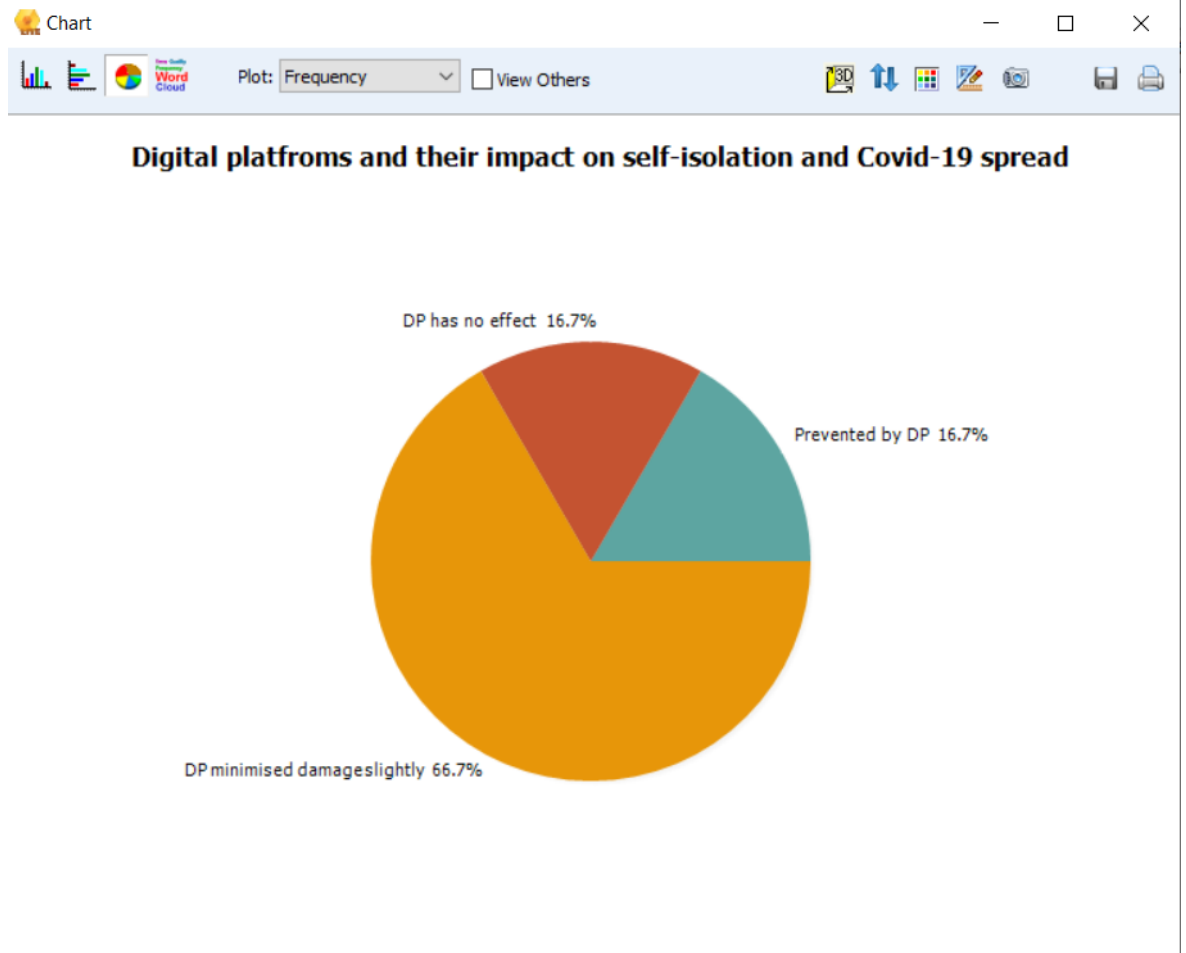
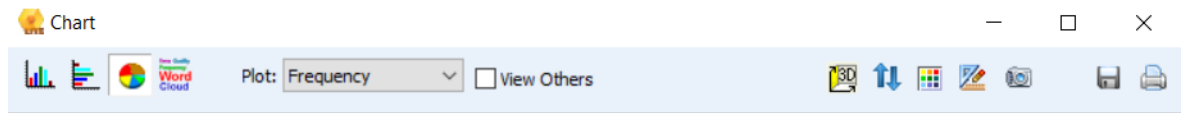


Figure 13. Q 5. Understanding whether participants used DP for making isolation easier.

The results show that the participants understand that even though digital platforms help them with their daily tasks, entertainment, and work or studies, online life is not real life. Digital platforms are not a long-term solution and they have many disadvantages in creating panic and misinformation in the population.

In the 6<sup>th</sup> question, I wanted to estimate whether the digital platforms have served as an aid to manage finances and plan the finances for the future. The pandemic has hit hard everyone financially, due to the fact that in the recent 10 years bank loans became an easy process, and many have thought that taking a loan is a smart financial decision that can advance their quality of life (Becker, Hege and Mella-Barral, 2020). So, what happened as a result of the pandemic, is that many people are indebted with high-interest rates, and many have lost their jobs in 2020 (Zabai, 2020). I wanted to see whether the participants were impacted, and are using digital platforms for investing managing savings, and spending? (figure 14).





**Financial Impact of Covid-19, and use of DP for financial management**

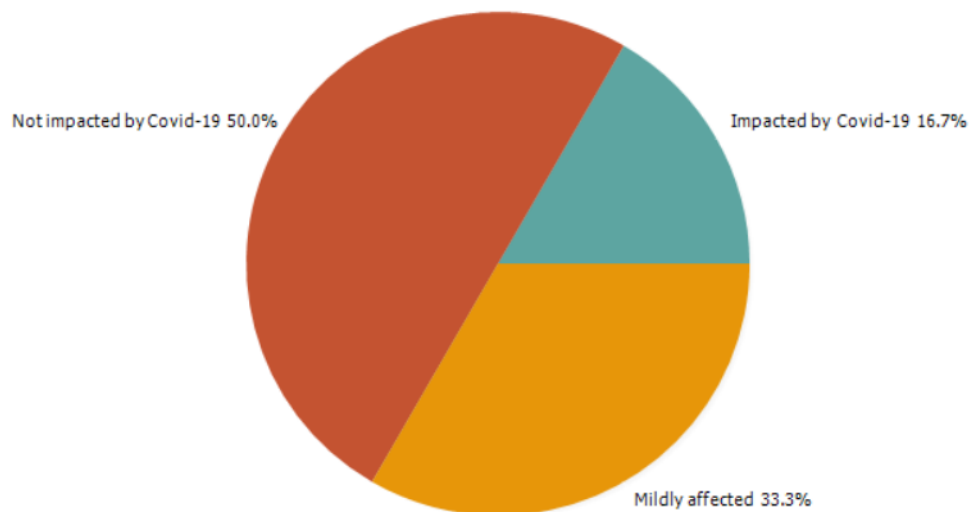


Figure 14. Q 6. Financial impact and digital platforms.

The majority of the answers reflect that there was no drastic change in financial planning among the participants. Many of them mentioned that they did not feel like anything changed in their financial planning. Some tried to use finance planning platforms before the pandemic, but due to the fact that here in Finland the banking system is so advanced and includes in itself, financial planning, self-identification, and payment options, this answers all their needs that might occur when planning finances (Mulari, 2019).

In the 7<sup>th</sup> question, I wanted to find out whether the fact that the regular lifestyle of the participants changed, and when the shift to the online and digital lifestyle occurred, have the frustration feelings intensified with a malfunctioning platform or bad usability design, or remained equally as before the pandemic? At the beginning of the pandemic, many platforms were crashing because the servers could not handle that strain of everyone being online, globally (Campos, 2020).

Since the pandemic, all the important things transferred online, and people who are looking for work are doing the application process online, as well as the video call interview for the position. If the platforms are malfunctioning or have a very confusing UI then this might cause a bigger frustration, due to that more is put on the scale than if we compare

to the pre-pandemic. The answers of the participants reflect that some react strongly, the majority are bothered and frustrated on a larger scale than before the pandemic (figure 15).

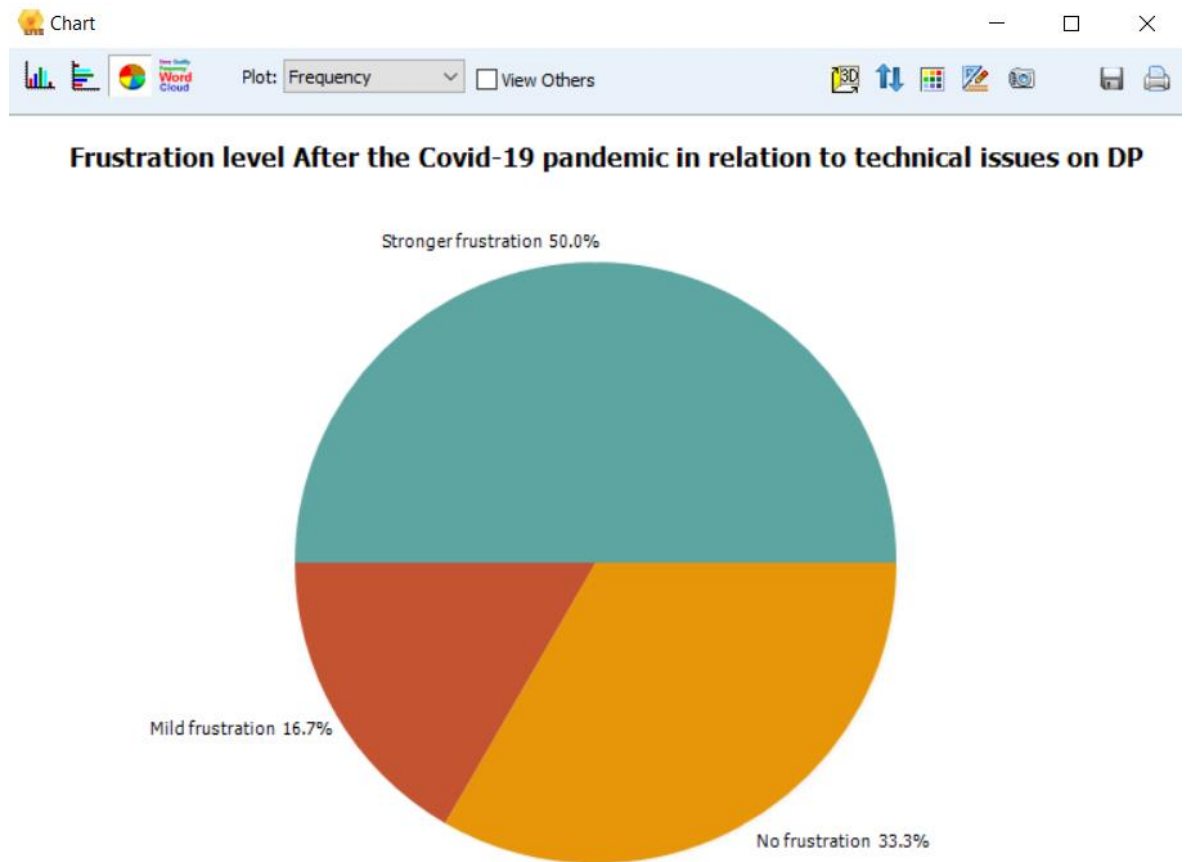
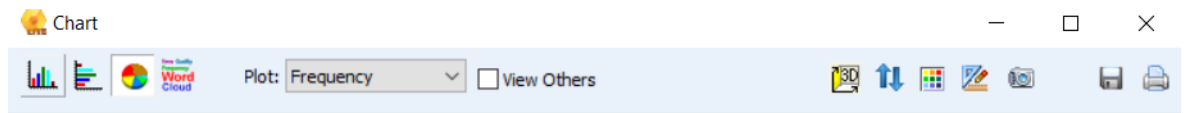


Figure 15. Q 7. Understanding the emotional impact of a bad UI design or a malfunctioning platform.

From my preliminary research, I have witnessed some UX changes in the digital platforms, specifically in the social media platforms. Social media started to block misinformation on their platforms and have banned fake content and prevented it from going viral. Also, they have taken measures and promoted the official accounts of the World Health Organization and also the local Health and Governmental accounts, to make sure that reliable information is spread and reaches the end-user (Limaye et al., 2020).

In question 8 (figure 16), I wanted to find out whether the participants have noticed the changes in their social media feed or any other digital platforms that they are using, for example, Microsoft added more attentive features to their platforms to make an emphasis on mental wellbeing, that makes it easier to work from home (Powell-software, 2020).



**Noticable changes in DP after the Covid-19 pandemic**

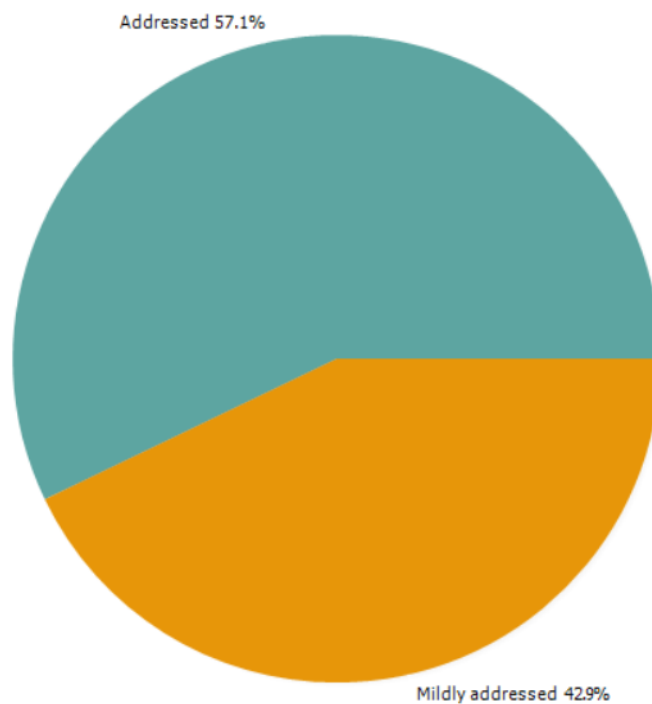


Figure 16. Q 8. Estimating whether the participant noticed any UX/UI changes in their usual digital platforms.

As we can notice from the answers, the majority agreed that some of the changes that have occurred on digital platforms are due to the fact that the pandemic has changed the way users consume information, entertainment and changed their consumer behavior. The topics of the discussions on digital platforms have changed, the searches in search engines have changed, and also the overall shift in critical thinking when it comes to the viability of the information sources (Rosa et al., 2020).

At the beginning of the pandemic, the spike in online crime and data theft have increased significantly, this is due to the fact that so many people turned to the digital platforms online to obtain relief and acquire information, and some, as a result of the employment loss, decided to turn to criminal activity to make a quick profit online, and some fallen a victim to these scams (Singh Lallie et al., 2020).

In the 9<sup>th</sup> question, I wanted to find out whether the participants became more careful online since their life completely shifted into an online regiment. The majority of the participants of my study are technologically literate people, and they are savvy in the field of digital and data security. So, as we can see from figure 16, a majority have taken it into their

attention to pay and extra awareness over the security of their personal information, and what they share online and with who.

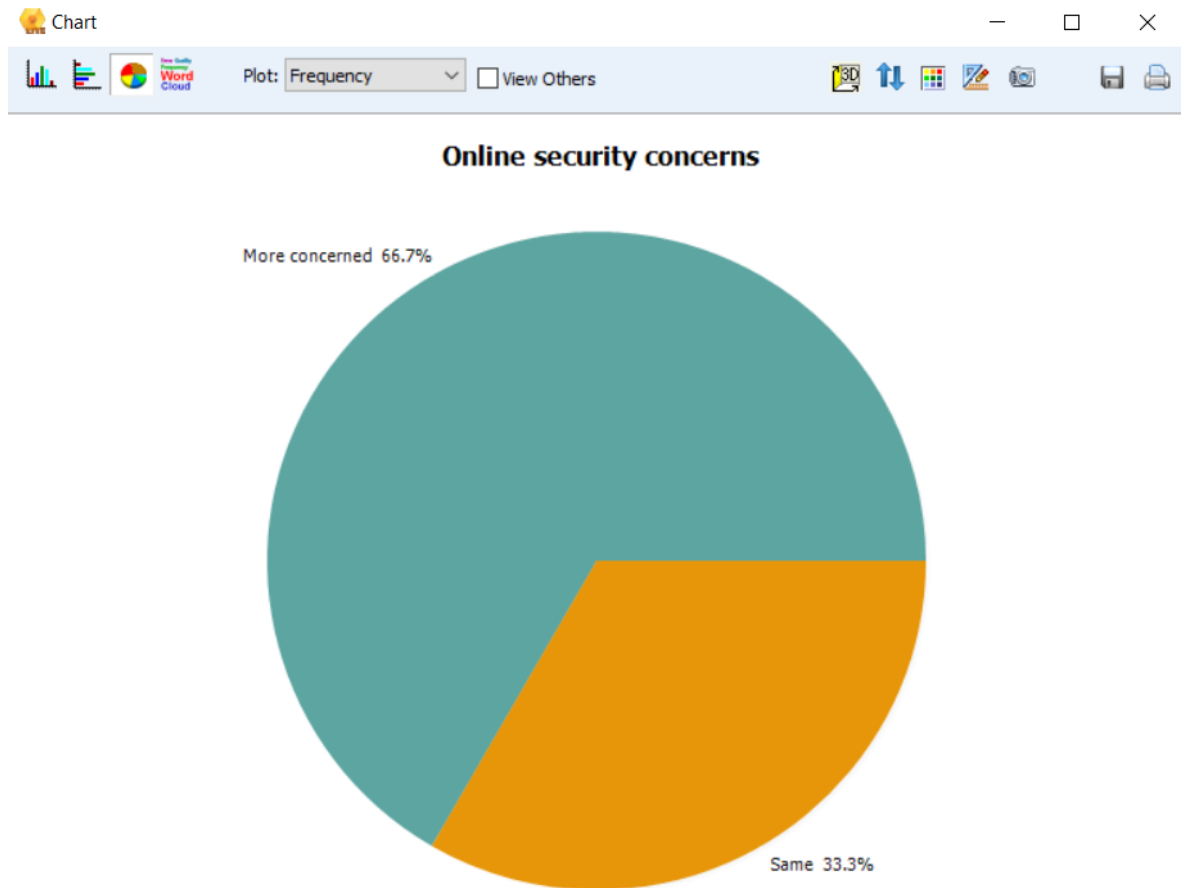


Figure 16. Q 9. Data and personal information security.

In the final question, I wanted to confirm whether the participants have developed more trust towards the digital platforms, compare to the beginning of the pandemic.

It is evident that with the rapid increase in the online presence of users, businesses take it very seriously to improve their customer's trust and their credibility. The market is expecting a shift in the way people incorporate digital platforms in their daily life, and the most trustworthy platforms and services will be chosen by their own target group, so companies prepare special business strategies directed at improving security and the trust of the customer in the service and information that they provide (Analytics, 2020).

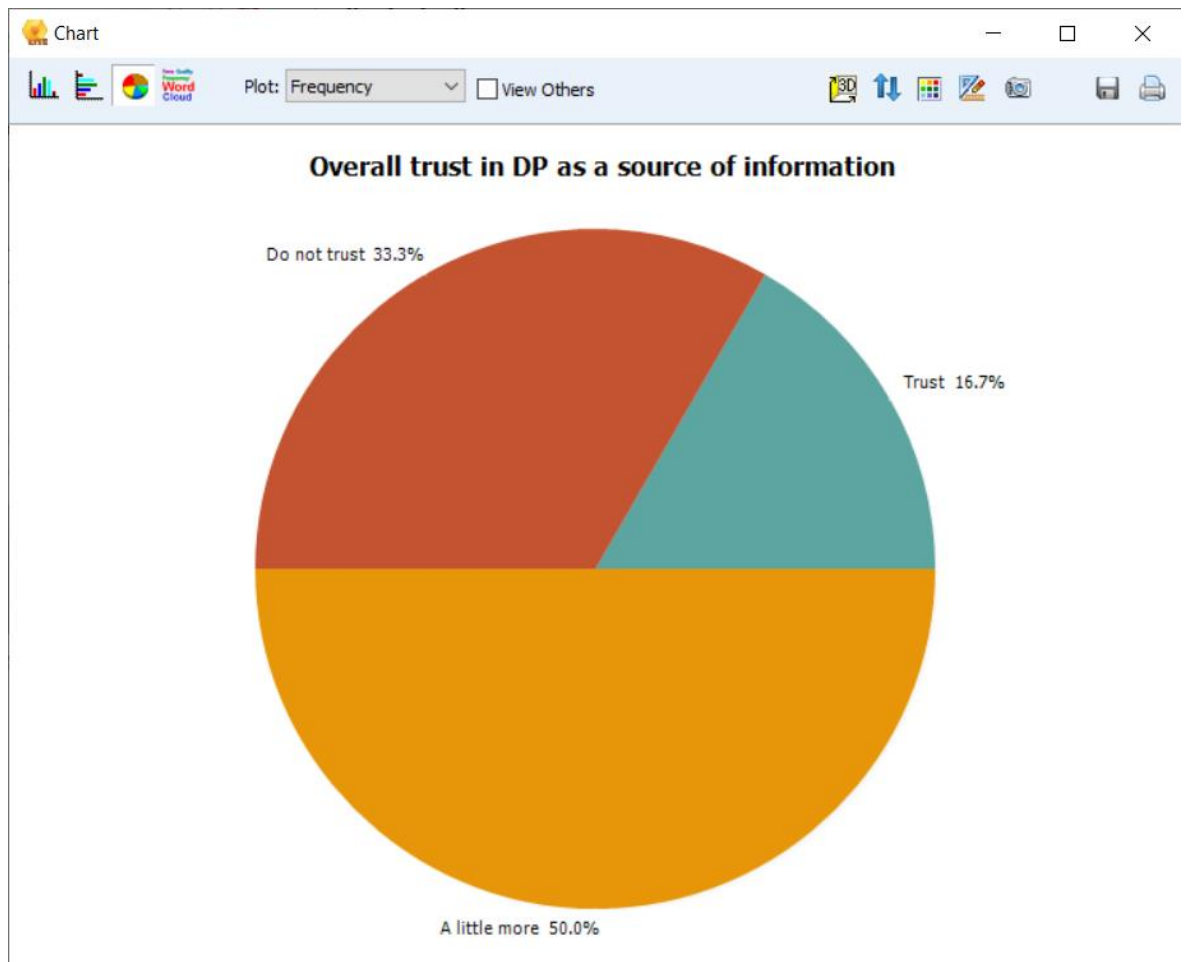


Figure 17. Q 10. Trust in Digital Platforms.

As we can see from the answers of the participants in Figure 17 they trust a little more but not quite, and despite the mentioned discomfort of using the governmental offices' platforms, people still choose to use them for reliable and trustworthy information. And even though the participants did notice a shift in the way Digital Platforms process information now, compare to the pre-Pandemic times, the participants still do not rely fully on that source of information, because is it hard to repair the reputation of Digital Platforms in such short period, and the platforms that proved to be reliable through the Covid-19 pandemic are not in the majority, and many platforms lost their credibility due to the wave of misinformation that started with the beginning of the Covid-19 pandemic (Nielsen et al., 2020).

## **5.5 Quantitative Research implementation**

In order to detach myself, and to minimize my involvement in the research results, I have decided to back-up my qualitative findings with quantitative objective research, to uncover the numerical data behind the conclusions of the qualitative interviews and analysis that I have conducted prior.

To define the quantitative research method, this method provides an answer from a statistical standpoint and provides numerical data as a piece of evidence or dispute to the hypothesis of the research and the research questions (Muijs, 2004).

Also, to avoid positivism and false confirmation of the research questions, which can occur in small scale qualitative analysis, I wanted to provide reliable measuring data that can answer that research questions accordingly.

This research can come closer to the truth behind the user experience of Digital platforms users, with a cross-analysis of interviews and basic survey research methods. Quantitative is a variable with a numerical value that represents a datum. When that data is gathered and analyzed, we can conclude and statistically determine an answer to the research questions. There are also two kinds of quantitative variables: Discrete and Continuous. Discrete means that the possible values are countable (finite), a Continuous value can be any value or an interval (e.g., average grade) (Aliaga, Gunderson and Internet Archive, 2003, pp.184–186).

If we compare differences between two research methods, qualitative and quantitative we can conclude that each fit a specific type of research. When we need context, understanding of qualities, opinions, we use qualitative subjective research, and when we need statistical probability and the numerical probability of a phenomenon, we use quantitative research (Boutellier et al., 2013).

In my research, both methodologies are supporting each other. I have used the qualitative method to obtain an understanding of the phenomena, and subjective opinions of users, this was necessary due to the fact that the pandemic of Covid-19 is a new experience globally and more context is needed to continue the research and have research-based conclusions. And in order to quantify the phenomena and the insights I used a basic survey to acquire the numerical data.

## **5.6 Survey questions and conduction of the survey**

In order to research a topic, we use a standardized questionnaire that has been composed by using prior knowledge and use of the research questions as the root of the questions that will follow in the survey itself. This is a very quick and easy tool to obtain

answers to direct questions and to find out the preferences, opinions, and behavioral patterns of certain participants. The survey can be a useful tool to follow and research data that cannot be gathered in any other way. The opinions of people on a certain product cannot be investigated without directly asking the customers what are the product's favorite, or least desired traits. We can follow the statistical chart of sales, and determine what sells well, but this will not give us the insight to accelerate the sales. So, despite the basic survey being quantitatively oriented, we do get a lot of qualitative insight and context from this type of research along with the numerical values, which is very useful. Surveys are also having positive connotation among respondents, many will volunteer to answer a survey and give their feedback, which allows a wider range of research and reach of population groups (Bhattacharjee, 2012, pp.73–77). So, in 1875 Charles Booth who was a shipping magnate decided to create a 'Poverty map' that requires data gathering from the poor and the majority of the population that back then was illiterate, and his goal was to answer the questions of how poor become poorer, and how the poverty can be remedied. So, he diverted the attention to the largest bit of the population that was ignored due to their low status and inability to answer a questionnaire. He collaborated with politicians and mathematicians to color code the data. And defined the 'Poverty-line' (Andres, 2012, pp.6–8). A questionnaire was invented in the Victorian era by Sir Francis Galton who was a polymath and a sociologist. He intended to gather the required data in a standardized and productive way, that allows to quickly scale the data for statistical analysis. The questions need to be concise and understandable to obtain the clarified answer. The demographic for questionnaires is limited to adults that are literate (Bhattacharjee, 2012, pp.73–77). The questions of my survey have been composed by using the material from the qualitative interviews, I have added some questions that needed further investigation, as it raised from my interview analysis, I wanted to have more specific questions since I won't be able to discuss any topics with online survey respondents, so I have paraphrased questions that have been too difficult to answer shortly or ambiguous. I have come up with 13 multiple choice questions and one open question for the participant to add something. I have used Google Forms for the survey, this platform is very comfortable for use, with a friendly UI, and since this is a popular and trustworthy platform, participants were more attentive in answering my survey. I have distributed the survey online in social media and forums like Reddit, and on WhatsApp groups and through emails, my thesis coordinator Amir Dirin PhD. has helped me to distribute this survey by sharing my post on social media. I have gathered 109 responses and have analyzed the numerical data that I have gathered.

## 5.7 Research Findings and results

This chapter of the thesis is going to discuss the results of the basic survey that was conducted in reference to the qualitative interviews research and its results.

The survey has aimed to gather 100-120 responses, and as a result, I have gathered 109 responses in 3 weeks' time. The survey aims to answer the gaps that were left unanswered in the qualitative research as well as obtain the numerical values behind the insights and conclusions that were made during the data analysis of the qualitative research.

In the first question I had to obtain the information on whether the same type of Digital platforms is used most often as in the qualitative research results, so to identify this I started to form the type of Digital Platform (figure 18).

The main category of DP that you use daily:  
109 responses

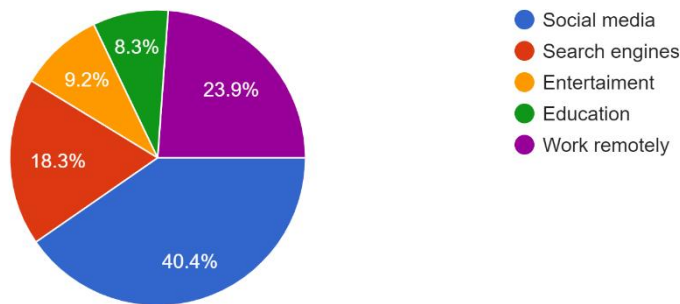


Figure 18. Digital Platform type.

As we can see here, I added the remote work category, in order to estimate the number of users that have dedicated the Digital Platforms use to mainly for work purposes. We can see that a significant amount of 23.9% has confirmed using their Digital platforms mainly for work. The top result remains to be Social Media, but we have to take into account that many are working on social media and using that as a source of income, so these two results can be intertwined in some cases.

In the second questions, I wanted to identify whether the user has been abandoning Digital Platforms more easily due to uncomfortable UI (user interface), because a shift to an online lifestyle as a result of the pandemic can shorten the patience of users to remain among the customers of platforms, especially of the spike in usage many platforms can malfunction due to servers crashing (figure 19).



Have you abandoned your usual DP during the pandemic, because of an uncomfortable User interface?

106 responses

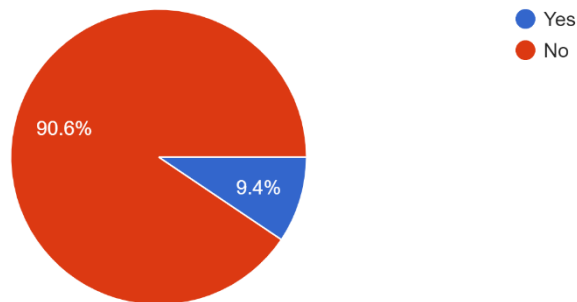


Figure 19. Digital Platform UI assessment and shift to a different platform.

Two respondents did not answer this question. We can conclude that people remain in their habits and will not switch to a newer platform quickly, there is a small number of users that did switch to newer platforms.

In the third question, I wanted to see whether people feel as if the Digital platforms are vital to their daily tasks and their accomplishment. As we transformed our lives online, and have enhanced our online presence due to the consumerism of services online, do we acknowledge how much are dependent on these platforms?

In figure 20 we can see that the vast majority attributes the achievement of their daily tasks to Digital Platforms.

Do you feel like your daily life or daily tasks are depending on a certain DP?

109 responses

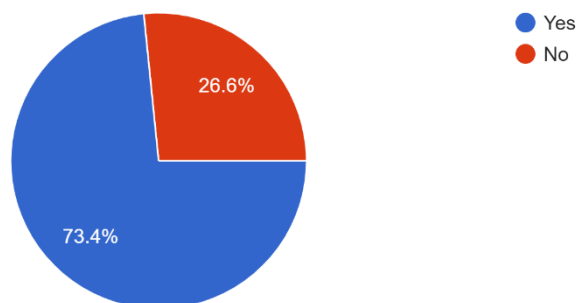


Figure 20. Dependency on Digital Platforms to accomplish daily tasks.

In the 4<sup>th</sup> question, I wanted to find out whether Users feel that their online presence has increased after the pandemic. The online services we are using now, we have used before the pandemic as well. Despite this still many have felt that their online presence has increased and explicitly during the pandemic (figure 21).

Do you feel an increase in online presence in your life after the pandemic?  
109 responses

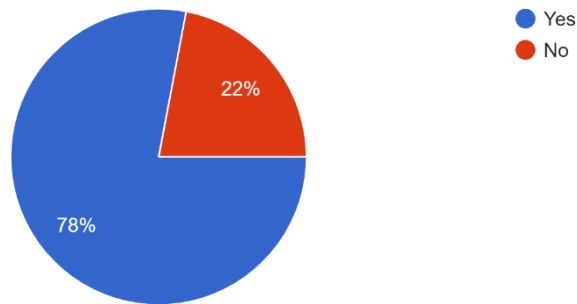


Figure 21. Online Presence increase.

During the pandemic, the amount of fabricated content has increased, suggesting misinformation on which many people have relied their choices and behavior. The fake content producers that published it on Social media, used the excuse, to justify themselves, that this is a new virus, and that even science is unaware of how to deal with it. We have to understand that in a time of crisis, the rate of critical and rational thinking is decreasing, and many users believed the fake content that was flooding the Social media platforms, especially if promoted by Social media influencers, who have a large audience. But many users have gotten frustrated with the amount of fabricated news through their feed and decided to erase their social media accounts (Brennen et al., 2020), also attributed to the study that found that the increased online presence and the free time, fake content and people spending time reading it can attribute to a negative effect on mental health (Gao et al., 2020).

So, in the 5<sup>th</sup> question, I wanted to understand whether the respondents have had the thought of disconnecting from social media more during the pandemic (Figure 22).

Have you considered erasing accounts on DP?  
109 responses

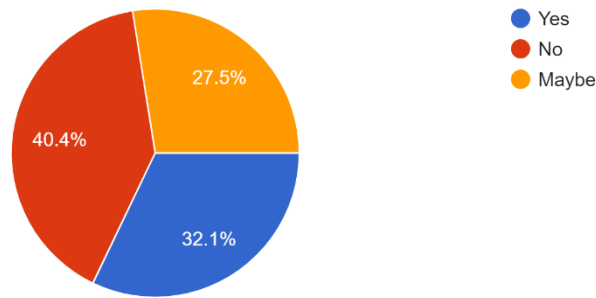


Figure 22. Consideration of erasing social media during the pandemic.

The privacy and data security concerns of users have increased during the pandemic. Many have had incidents of identity theft, but also people do not want their personal data to be sold or even held in the possession of a company (Gerke et al., 2020). In the 6<sup>th</sup> question, I was interested whether users are more concerned and aware of their digital footprint, and the personal data that they give away to the platforms online (figure 23).

Have you become more concerned about your privacy and data security after the pandemic?  
108 responses

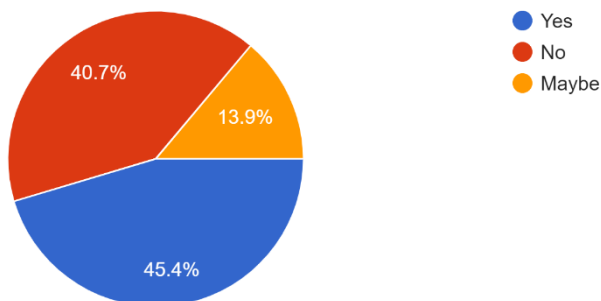


Figure 23. Privacy and personal data security concerns.

We can see that the majority have started to become concerned with the security of the data and the information that they share online. Many services online require personal identification, banking credentials, or even passport or ID photos like in the case of Airbnb. The risk for identity theft increases as a result of a rise in the consumption of digital services and the necessity of these services in people's daily life.

The purpose of the next question was to find out if people that are concerned for their privacy and personal data that is collected by companies, do they actually read the cookies agreement and the targeted ads agreement on the Digital platforms that they use (figure 24), we can see that despite the fact that many respondents have expressed concern for their data and personal information after the pandemic, still majority are not reading the terms of use of the digital platforms, apps and websites that they use.

Do you read the Cookies agreements and targeted ads on DP and websites?  
108 responses

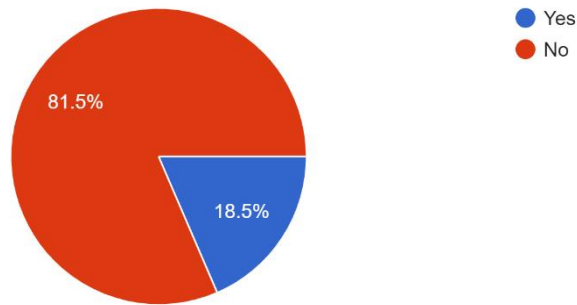


Figure 24. Terms of service reading rate.

Many are not aware that the main product of companies are not the apps and digital services they provide, but the customer itself. All the information is gathered, analyzed, and resold to the highest bidder. This information can be trivial or very sensitive and many companies have access to information that we do not want them to have, but we are surrendering to our psychological need for immediate satisfaction in the face of a service or a product that we are ready to press the 'Agree' button. This is also the reason why the terms of service agreements are so long and tedious to read. A person that wants to receive immediate service or product will not bother to read. Visual Capitalist have checked the main digital platforms and their service agreements and compared the timeframe of how long does it take to read their agreements, with calculating the average reading speed with the word count in each contract. The findings are that Microsoft has the longest agreement with 15,260 words and if we spent the day sitting down and read it with an average speed of 240 words per minute, it might take us only 63 minutes to read. For comparison, they place Shakespeare's Macbeth that is 17,121 words (LePan, 2020).

The next question was to find out whether users felt that they can rely on Digital Platforms as a source of reliable information on updates about the Covid-19 situation.

In figure 25 you can see that contrary to the interviews, many have found the digital platforms to be a reliable source of information.

Do you feel like DP has allowed you to reach reliable information about the Covid-19 situation?  
109 responses

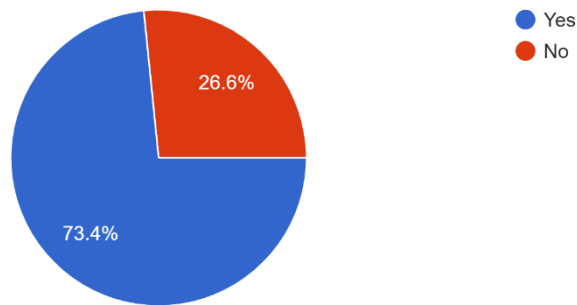


Figure 25. Reliability of information on DP, about the Covid-19 pandemic.

The next two questions are about the financial situation among respondents, and their use of digital platforms for the management of their finances, savings, and spending (Figure 26, 27).

Did your financial state become an issue during the pandemic?  
109 responses

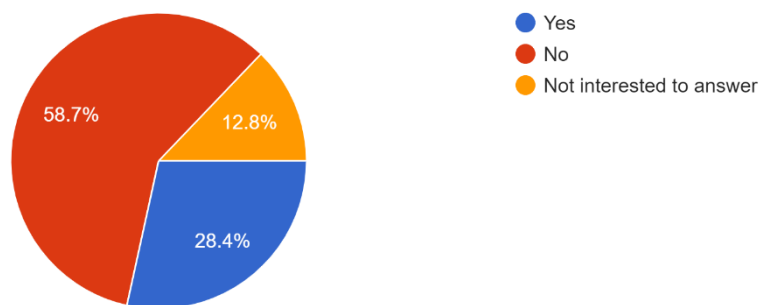


Figure 26. Influence on financial state during Covid-19 pandemic.

Do you use DP to manage your finances (like an app for financial management)?  
108 responses

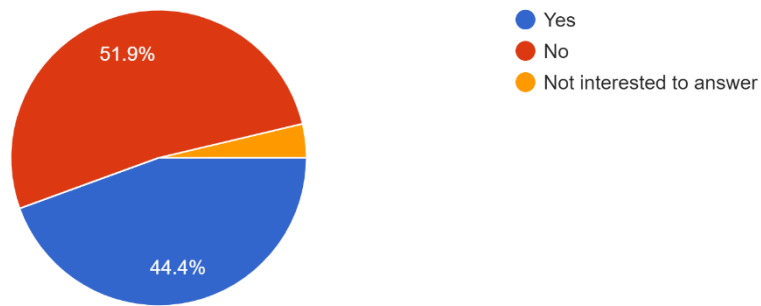


Figure 27. Use of Digital platforms for personal finance management.

In order to maintain the ethical aspect of the survey, I have added the option of 'Not interested to answer' because the financial aspect may be an uncomfortable topic to some respondents due to cultural or other reasons. In order to maintain the truthful and honest responsibility by adding a non-response option, I minimized the unreliable and misleading answers that might be given due to shame or cultural aspects.

In the next question, I wanted to find out have the users have been perceiving the digital platforms as an aid to acquire services and minimize physical contact. Digital platforms have helped many to maintain self-isolation and continue to consume the services they were used to, without compromising comfort. The majority attributes this comfort to the use of digital platforms (figure 28).

Do you use online shops and services to prevent going physically to acquire a service? (for example online grocery shopping)  
109 responses

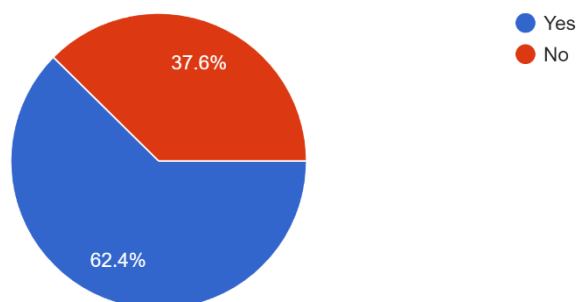


Figure 28. Use of DP to consume services and to maintain self-isolation.

In the next question, I wanted to identify whether users perceive the Digital Platforms as something positive that actually helped in slowing down the spread of the virus. The majority have the understanding that Digital Services was crucial in slowing down the spread of the virus, and others hesitate whether it was so, and a very minor amount think is it unrelated (figure 29).

Do you think that DP has helped to prevent the spread of the Covid-19 virus, by providing sufficient services and entertainment online?

109 responses

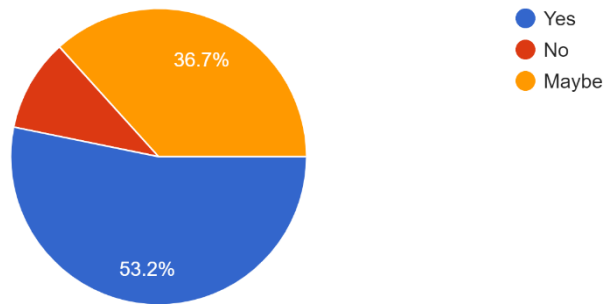


Figure 29. DP slowing down the spread of COVID-19.

The last question of the survey was dedicated to self-education during the pandemic. Since many companies like Microsoft, Codecademy, LinkedIn, came up with education and certification programs to help combat unemployment and provide people with online qualification. I wanted to find out whether the respondents have used new opportunities to enhance their skills since the beginning of the pandemic (figure 30).

Did you use the DP to increase your education or to obtain a certification?

109 responses

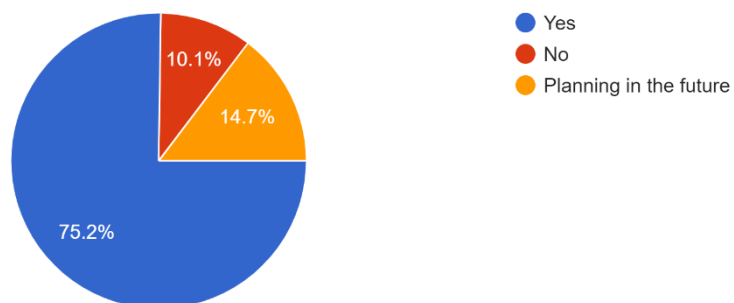


Figure 30. Online education and certification consumption rates.

After analyzing the results that were obtained through Google Forms, I had to create a cross table that compares the results of the Qualitative interview and the Quantitative basic survey.

In the table below (figure 31) I included the question that was asked during each research methodology, including the added questions to the survey that I have thought should be added to receive a wider perspective on the numerical values of usage of Digital Platforms during the pandemic. I have compared the average answers of the Interviewees and the survey respondents.

<b>Interview questions</b>	<b>Survey questions</b>	<b>Average answer - Interview</b>	<b>Average answer - Survey</b>
Did you use digital platforms before the pandemic, and in which category? -social media -search engines -e-commerce -communication -education	The main category of DP that you use daily: -social media -search engines -e-commerce -communication -education - remote work	Communication apps, social media	Social media
Have you abandoned some of your regular platforms due to uncomfortable usability, and why did you abandon them?	Have you abandoned your usual DP during the pandemic, because of an uncomfortable User interface?	Yes	No
What are the feelings and emotions do you experience when a platform is malfunctioning? Is it more frustrating than before the pandemic?	Do you feel like your daily life or daily tasks are depending on a certain DP?	Not bothered	Feel dependant



Did you feel like companies have addressed your needs in the digital platforms?	Do you feel an increase in online presence in your life after the pandemic?	Yes	Yes
Not asked in the interview	Have you considered erasing accounts on DP?		No
Did you start worrying about the security of your data and private information online, as a result of switching to an online lifestyle?	Have you become more concerned about your privacy and data security after the pandemic?	Yes	Yes
Not asked in the interview	Do you read the Cookies agreements and targeted ads on DP and websites?		No
Do you trust digital platforms more now, than at the beginning of the pandemic?	Do you feel like DP has allowed you to reach reliable information about the Covid-19 situation?	No	Yes
Not asked in the interview	Did your financial state become an issue during the pandemic?		No
Did digital platforms help you to plan your finances more efficiently? -Did you plan your finances as diligently as before the pandemic?	Do you use DP to manage your finances (like an app for financial management)?	No	No
Do you feel like the isolation affected your social skills negatively, and did the digital platforms were able to remedy it?	Not asked in the survey	No	

Not asked in the interview	Do you use online shops and services to prevent going physically to acquire a service? (for example online grocery shopping)		Yes
Do you believe digital platforms helped to stop the spread of the virus, and why?	Do you think that DP has helped to prevent the spread of the Covid-19 virus, by providing sufficient services and entertainment online?	Undecided	Yes
Did you create an online community or join one, for the purpose of feeling more connected? Did you participate in digital communities before the pandemic?	Not asked in the survey	No	
Not asked in the interview	Did you use the DP to increase your education level or to obtain a certification?		Yes

Figure 31. Cross comparison between the Qualitative Interview answers and the Quantitative survey answers.

We can conclude from this comparison that the qualitative data does not always align with the quantitative data, this means that we are able to check the data for viability with the help of numerical data from the survey. The answers from the qualitative data that are confirmed by the survey data are more likely to be a piece of reliable information and this also strengthens the validity of the research, and the quantitative data give the finding a statistical significance and this shows as how accurate the data is, because in a qualitative research we cannot eliminate completely the factor of subjectivity. I have been inspired by the book by Ragin, Charles C. "The Comparative Method: Moving Beyond

Qualitative and Quantitative Strategies”, this book describes a Boolean approach to data analysis and when qualitative insights are backed up by numerical quantitative insights, they are more reliable and viable, I applied Mill’s method that states that if one factor is common instances of a case that is a cause, and the frequency of instances I presented in the survey analysis and the factors were identified by the qualitative research (Ragin, 2014, pp.36–40).

## **6 Discussion**

The discussion of the thesis research has the objective to elaborate on the results and insights on the data analysis. The thesis work has begun back in September 2020 and has been finalized during February 2021. The topic of the thesis was chosen through inspiration from an article by Kate Moran “COVID-19 Has Changed Your Users” for Nielsen Norman Group. It put emphasis on the customer research that companies need to conduct and not neglect, in order to provide end-users with Digital Platforms that are adjusted to their new lifestyle and behaviour as a result of Covid-19 (Moran and Nielsen Norman Group, 2020). Also, the phenomena of people using their social media account more as a surrogate to social life and boredom management, and this took a more accelerated pace during the pandemic, have given an area to research for this thesis, in order to explore how companies can provide platforms that provide a safe, reliable and beneficial (Kemp, 2020).

The end-users in Finland have been affected less than other European countries, Finland is in 7<sup>th</sup> place worldwide in the Corona resilience Bloomberg report (Chang, Hong, and Varley, 2021). As a result of the stable situation in Finland, free education, and good digital services infrastructure, the country’s residents were less affected. The impact on the Users was not as significant as in other countries. Finland was well prepared for a crisis situation and had a very good strategy in place. The obedience of the Finnish population to the regulations have played a significant role and shows that people trust their government and the law.

People have transitioned very quickly to the new digital lifestyle, and many were happy to switch to online services and start working from their own homes. But, as time passed many have regained the wish for social contact, will participate in social events, and interact with the world the way it uses to be prior to the pandemic. The sense of taking control over their lives makes people more prone to mild mental disorders like seasonal depressions, existential crisis and simply being overwhelmed.

The users of Digital platforms have lost trust in the reliability of the information these platforms provide. Many prefer to use government official channels in order to acquire information about the situation. The reliability of a platform and its reputation became the critical factor for the customer. The pleasure of using a comfortable platform does not play such a significant role anymore if the reputation of that particular platform is perceived as unreliable or spreading misinformation. People's emotions became stronger when they use a service after the pandemic because the urgency of obtaining a high-quality service has risen.

The qualitative research was conducted with participants (figure 5) that I have known personally, who live in Finland, they are well educated and have extensive knowledge about Information Technology, either from work or by education.

If we look at my research questions, we can spot some of the answers to my research question, that this thesis is intended to answer. I am taking into account that these are preliminary results, and only after the quantitative analysis results, and cross-analysis between the two steps, we can expect dispute or confirmation of the concluded insights.

So, the first research question is:

- What emotions and feelings impact online user experiences when using a digital platform during a pandemic?

According to the qualitative data analysis and the preliminary literature research, people who retained their employment, or even increased the quality of their life during the pandemic, did not experience strong negative emotions in the long term, they just continued with their lifestyle, but some of them did feel the momentary frustration (figure 15). Despite that, it might seem like they were not affected, but that can be wrong. In recent months and heading towards the end of 2020, we can see articles like "Social Distancing and Lockdown – An Introvert's Paradise?" by Maryann Wei. Ph.D., about the wellbeing and mental health of people that continue working from home, and how much their quality of life has deteriorated (Wei, 2020).

The main cause of despair is an abundance of freedom and the lack of it. People want to have the freedom of choice to decide, whether they want to work from home, or from the office, the thin border between too many choices, like before the pandemic, and lack of it can cause disruption in the human psyche (Markus and Schwartz, 2010). And the reason is that majority of the time people are forced to work from home, stay at home with the kids, and isolate themselves. The enforced isolation causes the deterioration of their wellbeing, motivation, and lack of energy (Smith et al., 2020).

In 1976 two psychologists Ellen Langer and Judith Rodin, have conducted an experiment in an elderly home to estimate the effects of choice on overall mental well-being, floor

number 2 in the elderly home was designated for a group of elderly people that every little choice was to be made for them, starting from the food they eat and also the decoration of their personal rooms. On floor number 4 the elderly were given a choice on how to decorate their room, and what type of plants they would like in their rooms, and also they were asked to take responsibility for taking care of their room and plants. The conclusions of this experiment were that when people are given control over their lives, they are more active and the elderly people on the 4<sup>th</sup> floor that were given freedom of choice, were organizing social events and were more satisfied with their lives, also the psychologists have hypothesized that it affected the longevity of the tenants as well. The tenants' count has decreased on the 2<sup>nd</sup> floor by 30% but on the 4<sup>th</sup> floor only by 15% (Langer and Rodin, 1976).

When the isolation is done by choice, we can see that people, especially the introverted kind, are recharging their energy and feel like they have control over their time and life. On the contrary, when a circumstance from the outside, in this case, Covid-19 pandemic, comes and changes their life. The loss of control, and the mental plans for the future, caused the shaking of the mental state and wellbeing. When the participants, are forced to use a certain digital platform, that simply repels them. They want to feel like they can still make choices in their professional and personal lives. Therefore, people switch to different platforms more often and are more willing to try new platforms, in order to organize their online presence according to their choice and under their control.

So, in summary, the emotions are a wish to control, suspicion, criticism, boredom, anticipation, and need for escapism when it is a platform for personal use and impatience. These emotions are different during the pandemic because they are stronger and less positive, the platform that will supply the sense of control and choice will win the hearts of the users.

Second research question:

- What are the users' needs nowadays? And how are they different from pre-pandemic times?

Before the pandemic, the emotions of the users were varying between Pleasure, usability, reliability, and functionality, these represent the list of emotions that customers need to feel in order to adopt a product into their lives (figure 32) (Walter and Spool, 2011). The emotions themselves did not change but their prioritization in the user's eyes did. According to my research, the reliability of the design is in one of the top places (figures 10,15,25). Now that all our lifestyle was shifted into online, and we pay, work, and stay the online majority of our time, and reliable interface that we can trust became more important during the pandemic. It used to be that Pleasure was the priority, and this was caused by the fact that humans tend to consume content that helps them to escape by providing pleasure, and even though pleasure and escapism are still present during the

pandemic, the urge to survive physically, financially, and mentally is stronger than just entertainment (Blit, 2020).

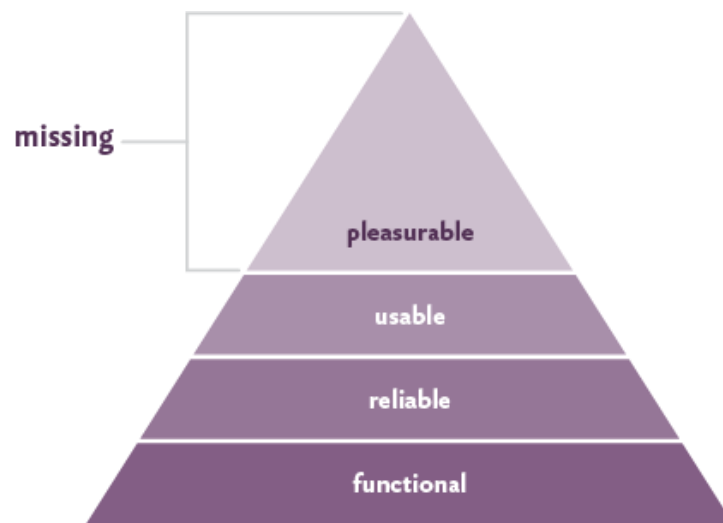


Figure 32. Aaron Walter's concept of emotional design (Walter and Spool, 2011).

Third research question:

- What companies can do to address the new needs of users in terms of UX design?

In figures 23,25 we can see that the transparency and security for the client are at the top priority, and the client need to feel more and more secure and valued, during a time of crisis. Also Companies should supply services that provide a sense of freedom to the user, and at the same time provide a reliable platform that has a reliable interface, bug-free, and the reputation of the company must be impeccable. The platform should provide reliable content, security for the user, and comfortable design (figure 17).

## 6.1 Reliability and validity

The purpose of the thesis is to provide an updated and reliable data. All my resources are academic articles and research publishing. Since the Covid-19 situation has been developing rapidly and newer research would be published that might contradict the prior conclusions, the author would always check for newer publications to make this research as up to date as possible and to display the turn of events and how they have evolved. During the research, both qualitative and quantitative methodologies were used. This was made in order to cross-compare the data and come to the most viable conclusions. Also, the numerical data that was acquired during the survey conduction, represents the scale of participants that agree with the conclusions that were made as a result of the qualitative interviews data analysis.

The interviewees of the qualitative interviews were acquainted with the author but are not in close acquaintances, which allowed a more objective data obtainment, since the author was not shy to ask personal or more detailed questions, and the answers were clear and as reliable as possible. The gender distribution was not equal, and their employment status was not the same either, because the researchers wanted to get insights from both employed, students, and the unemployed. The number of interviewees is not large, since it was hard to convince people to participate in the research and this could have affected the results of the qualitative analysis since these opinions are very subjective and personal. This is why I backed up the results with a survey that had a significant amount of respondents, and this shines a light on the situation in a clearer way.

The study did have its limitations since the interviews and survey were conducted in Finland and despite the fact that participants were from different nationalities, they all currently reside in Finland and have a stable life compare to their home countries.

There was also a plan to create a chapter with Experts interviews, where the author has interviewed experts in service design and UX, in order to hear from them about behind the scenes of the industry and what are their opinions on the matter, and how Covid-19 changed the principals of service design. The author has conducted an Interview with one expert in Urban planning service design, but it was harder to convince more experts to contribute their opinion and to be interviewed. There were many attempts to contact experts on a global scale and also from Finland, in digital service and design. Also, an attempt to contact the Aalto University USchool professors, the school of human-centered design, but unfortunately, they refused to participate. The plan was to compare the experts' opinions with the Qualitative and quantitative data results. Also, due to lack of research on such new topic as Covid-19, the information needed to be acquired from the first sources, sadly this did not become reality and the chapter of interviews with experts had to be canceled and replaced with more extensive literature research.

## **7 Conclusions**

The research has concluded that the effects of the pandemic on digital platforms and their end-users have been crucial to the development of these platforms. The platforms that have provided a reliable service were the winners. In all categories of the Digital Platforms, we can see that users have become pickier and more careful when it comes to choosing a service. This comes from raising awareness of cybersecurity and that everyone should take care of their privacy. Also, the end-user wants high-quality service, and the demand puts a toll on the service providers. For example, the app Discord that provided a server for their customers gained more clients because of the smooth functioning

of their product (Kruglyk et al., 2020). Meaning that companies are trying hard to provide the most smoothly operating service in order to lead in the market while people transition to the online lifestyle.

IT skills have proved themselves to be critical since people with those skills have retained employment and had a bigger variety of industries they could join. Also, many have gained an additional source of income and freelancers in that field. This is why there was a spike in the demand for online education in the area of IT and other sources of free education and certification, that allowed people who lost their employment during the pandemic to regain a profession in a new field. Despite that many from the older generations have suffered from the change, because lack of will to study a new profession or a skill. The pandemic created a new wave of online businesses over the social media platforms, and many have started to use that as a source of income, to gain an audience and sell info-products, tangible products or to just have a blog that brings income from affiliation programs that many companies have launched even prior to the pandemic. Becoming an 'influencer' has turned into a goal for many users of digital platforms since this has become a more reliable source of income.

### **7.1 Recommendations for further research and for Digital service providers**

In order to continue the objective of this thesis, a wider spectrum of interviews should be conducted on a global scale, with participants that incorporate digital platforms in their daily lives. Also researching the developing countries and how they have addressed the absence or low development of digital platforms in their countries, and do they plan to create a digital infrastructure to help and combat the results of the Covid-19 pandemic. There needs to be a psychological analysis of the behaviour of users online and how did it affect their activities and demands from Digital Platforms.

There is a need in creating new personas, to compare the pre-pandemic and the current user. Uncertainty and despair can create new prioritisations for the users.

The platforms should start providing their users with educational content for free or for a small subscription fee, to create a new source of income and more interest in their platforms. In order to raise the reliability of the platforms, providing educational content can create a sense of assuredness.

The sense of choice is a very critical part of establishing a new relationship with the customer. By providing varied choices on the platform, can create a sense of freedom that is very important for the user during times where the control over their lives is being regulated.



Sense of social closeness and community can be a very critical part of creating a good Digital Platform where people can share their stories and befriend other users.

Also, the factor of providing a helping hand for those that are in need, Digital Platforms are a good place for providing mental help, financial and even physical aid for those that are in need and cannot take care of themselves like the elderly or people with disabilities. The UX strategy of business, as stated in chapter 3, should become the main methodology to create products that are backed up by a gathered data. Both qualitative and quantitative usability testing should be conducted and documented for future crisis situations like the pandemic, since a can be learned about how to handle the needs of end-users on Digital Platforms.

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## Appendices

### Qualitative Interview questions:

<p>Did you use digital platforms before the pandemic, and in which category?</p> <ul style="list-style-type: none"><li>-social media</li><li>-search engines</li><li>-e-commerce</li><li>-communication</li><li>-education</li></ul>
<p>Have you abandoned some of your regular platforms due to uncomfortable usability, and why did you abandon them?</p>
<p>What are the feelings and emotions do you experience when a platform is malfunctioning? Is it more frustrating then before the pandemic?</p>
<p>Do you believe digital platforms helped to stop the spread of the virus, and why?</p>
<p>Do you trust digital platforms more now, than in the beginning of the pandemic?</p>
<p>Did digital platforms helped you to plan your finances more efficiently?</p> <ul style="list-style-type: none"><li>-Did you plan your finances as diligently as before the pandemic?</li></ul>
<p>Did you create an online community or joined one, for the purpose of feeling more connected? Did you participate in digital communities before the pandemic?</p>
<p>Do you feel like the isolation affected your social skills negatively, and did the digital platforms were able to remedy it?</p>
<p>Did you feel like companies have addressed your needs in the digital platforms?</p>
<p>Did you start worrying about the security of your data and private information online, as a result of switching to an online lifestyle?</p>

**Quantitative survey Questions:**

The main category of DP that you use daily: -social media -search engines -e-commerce -communication -education - remote work
Have you abandoned your usual DP during the pandemic, because of an uncomfortable User interface?
Do you feel like your daily life or daily tasks are depending on a certain DP?
Do you feel an increase in online presence in your life after the pandemic?
Have you considered erasing accounts on DP?
Have you become more concerned about your privacy and data security after the pandemic?
Do you read the Cookies agreements and targeted ads on DP and websites?
Do you feel like DP has allowed you to reach reliable information about the Covid-19 situation?
Did your financial state become an issue during the pandemic?
Do you use DP to manage your finances (like an app for financial management)?
Do you use online shops and services to prevent going physically to acquire a service? (for example, online grocery shopping)
Do you think that DP has helped to prevent the spread of the Covid-19 virus, by providing sufficient services and entertainment online?
Did you use the DP to increase your education level or to obtain a certification?

**Qualitative interview Invitation that was sent to the qualitative research participants:**

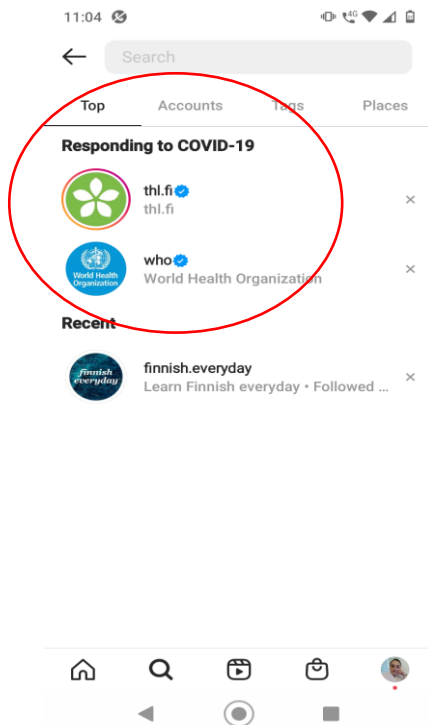
“

Hello! Thank you again for participating! I need to interview end-users, and their opinion will be analyzed for further research and this is the goal of the interview, to have a discussion and learn what has changed in the User behavior and the way they incorporate digital platforms in their life.

Here is a summary of my thesis research so far and what questions will be included in the interview, of course, the questions might change according to the discussion, to prevent it from becoming a robotic discussion about digital platforms, but rather a conversation about your digital services use habits on how your approach towards the platforms has changed, and how companies can improve you User Experience.

So, my thesis is researching specifically changes in the UX design in digital platforms, but I will need qualitative research on the changes in the behavioral patterns and the impact of the pandemic on them. Due to the Covid-19 pandemic, many shifts have occurred in the behavioral and psychographic, and maybe even cultural user segmentations. From my research so far, I hypothesize that users now are using digital platforms for education, finding reliable information, and also to spread misinformation and unfortunately, create panic. Till 2019, the digital platforms in the categories of social media, search engines, and entertainment platforms were encouraging content that is fake, provocative, and controversial, because it was bringing a lot of traffic to their websites and platforms. For example, the YouTube algorithm allows creators to create what is so-called “click-bait” content and promotes it over other videos. As a result of fake content promotion, what happened is that at the beginning of the pandemic, many people were flooded with fake information about the virus, and expert opinions that were viable and important, couldn’t reach the end-user, so WHO and THL for example have now cooperated with Instagram so the platforms make the reliable content “go viral” instead of the fake one and stop the spread of misinformation. This is of course an example of how social media users have changed and keeps changing every day.

### Screenshot from Instagram:



People are more aware of their finances, their choices on the online shops have changed as well, and people seek to acquire online certificates that will allow them to return to the job market through working from home. Microsoft have launched 'Microsoft Learn' a free certification service, for people who remained unemployed and whose profession might not be required at the moment, e.g. bartenders

<https://docs.microsoft.com/en-us/learn/>

**The Interview will be recorded for transcription purposes, and the results will be anonymously mentioned in the thesis, mentioning only age, gender, and academic background.**

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