“The effects of Digitalization on students’ learning experience after the rise of the Covid-19 Pandemic”

A Qualitative study on institutional and student behaviours because of disruptive digitalization after the rise of the Covid-19 pandemic.
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Abstract:

Digital technology has had an increasing impact on higher education and shifted the way of teaching and learning in a fundamental way. The outbreak of Covid-19 urges higher education to shift from traditional learning to digital learning and this made a big change in the education system and the way education is being delivered to students worldwide. Universities and higher education institutes had to use various digital platforms with numerous capabilities and approaches to facilitate learning. In their shift towards digitalized online platforms, higher education institutions ignored important aspects of digitalization in perspective with student’s learning experience. Therefore, this research is going to implement an exploratory aim to define the features and comprehend how higher education can expand student’s learning experience via digitalization by implementing and maintaining dynamic essential technologies in their system in future to expand student’s learning experience. Our finding shows that digitalization does have an impact on the learning experiences of students, and students are getting more reliable on these technologies and wish to continue their studies in a hybrid manner.

CHAPTER 1

1.1 Introduction

Digital technology has had a progressively major effect on almost all areas of activities and shifted society today. Because of digitalization, teaching and learning at universities are changing in a radical way. Information transfer, student evaluation, students’ assistance, and the administration process are being digitalized, and digitalization intends to deliver superior opportunities for productive learning (Brink, Packmohr, & Vogelsang, 2020). Using digital devices in the class we can create a particular level of ease and comfort but also knowing student experiences of using digital tools, it also makes it difficult in teaching and learning (Uğur, 2020). Smartboards and projectors connect wirelessly to computers or laptops, lectures can record, and students have access to the lectures anytime, students take notes on a laptop rather than handwriting notes and they tend to use computers in the classroom and this is a massive shift in education. In 2019, the outbreak of Covid-19 globally had an extraordinary effect on education and all educational institutions shifted from traditional learning to online learning. Educational institutions had to use different digital platforms with different capabilities and strategies to facilitate learning which made digital technology a primary
medium of education in the Covid-19 outbreak for students and universities (Mustapha, Thuy Van, Shahverdi, Qureshi & Khan, 2021). Moving to online learning by higher education during the pandemic affected learners, lecturers, and learning performance (Maqableh & Alia, 2021). Distance learning (DL), face-to-face learning (FFL), and Hybrid learning (HL) are three formats that higher education delivers the program. The use of technology in higher education has some benefits such as allowing students to watch recorded lectures before and after a class as per their ease and engage in more interactive activities or students can better collaborate with each other and rely on the instructor as a facilitator and higher education was not ready for this situation (Mahlangu, 2018). Mahlangu (2018) further argues some of the challenges of hybrid and distance learning are quality assurance, passive resistance, not enough lecturer training to use digital tools, lack of tools and technologies that facilitate adaptivity. Higher education institutions are following the same principle and trying to collaborate both through digital platforms after the rise of the pandemic.

Digitalization changed everything in education and this impacts on the teaching and learning styles. Lecturers and students already adapted themselves to the new way of teaching and learning. The current Covid-19 Pandemic urges universities all around the world to accelerate and upgrade their processes toward the digitalization of higher education. Even universities which had a traditional teaching style, urge to apply digital technologies in their system due to social distancing. Universities have practiced a large-scale evolution to online learning and speedily higher education around the world have had to alter resources and methods quickly to a format that is appropriate for online learning (Mustapha, Thuy Van, Shahverdi, Qureshi & Khan, 2021). The new system presented extraordinary challenges for students who need technical assistance and at the same time for the lecturers which we will explain further in our literature. While the development of digital transformation in higher education started years ago but Covid-19 has accelerated it and this impacts students’ experience (García-Morales, Garrido-Moreno, & Martín-Rojas, 2021). Higher education believed that the learning experience during remote learning would fluctuate, and teachers normally consider the difference in students’ skills profiles when preparing the lectures to reduce the effect of poor self-regulation skills and learning strategies (Loukomies & Juuti, 2021). Learning, Media & Technology can and should make a more direct contribution to knowledge and practice during the Covid-19 pandemic whereas a result of the mass closure of schools, colleges & universities, there has been a switch to online and digital education formats and the rise of ‘remote’ forms of teaching & learning (Williamson, Eynon & Potter, 2020).
1.2 Research Problem

After the rise of the pandemic, distance learning and education has become a major concern for political authorities, education businesses, teachers, parents, and students alike where education has become an emergency matter, and along with it, educational technologies have been positioned as a frontline service (Williamson, Eynon & Potter, 2020). During the health crises which resulted as a rise of the Covid-19 pandemic, universities were in an emergency situation to provide online platforms in order to continue lectures. But in this move towards online platforms, universities neglected vital aspects of digitalization in context with students’ learning experience. In our look for various studies online, we observed that there were very few studies which point out the planetary pivot to digitally mediated remote and distance learning. Right now, as we are in a post-crisis situation new expectations come to the universities in terms of connections between lectures and students in terms of teaching, international strategies, interacting, learning quality, environment, and perception. It is very important to study this change in technology and its importance in future. Looking at the problem in depth, the use or inclusion of advanced digital technologies affect the learning experience of students in such a way that it enables them to interact and communicate with their teachers and peers in a new manner. With the help of such digital technologies, students can take classes without being present there physically. We believe that as a result, the conventional learning methods have changed, and the new methods influence the study learning experience. This effect can result from various factors such as lack of physical presence in classes, lack of focus, lack of interest, increased reliability, etc. (Gjerde, Gray, Holst, & Dankert Kolstø, 2020). We noticed a gap in the literature and current studies that the scholars did not focus on this phenomenon to study the effect of digitalization on students’ learning experience after the rise of Covid-19 pandemic, therefore this is the unresolved issue in the literature that we would like to study.

1.3 Research Purpose

It can be easily said that the experience of students and lecturers, both depend on their familiarity with technologies and their knowledge of digital technologies. Lecturers are afraid that digitalization and using computers may lead to students losing the ability to learn and communicate effectively (Uğur, 2020). Students find the classroom as a different environment where the technologies of interaction they used personally are not applicable in the classroom,
therefore, universities should apply new learning tools in the classroom and consider students’ perspectives and needs (Uğur, 2020). Along with adopting advanced technologies traditionally, the pandemic gave rise to the need to adopt new Distance learning (DL), face-to-face learning (FFL), and Hybrid learning (HL) technologies. The understanding of the shift in learning experience of students will contribute to the knowledge of how higher education can improve the digital platforms in order to enhance students’ learning experience (Limani, Hajrizi, & Larry, 2019). Distance learning (DL) is a mechanism where students can undertake their classes or be included in a course without being physically present there whereas, face-to-face learning is a method being most conventionally used by universities all over the globe where students physically come and attend schools. Hybrid learning in this regard, is a mix of both, distance learning and face-to-face learning where students get the chance to experience both mechanisms. Most research done in the past has mainly addressed student dissatisfaction and lack of technology but fails to explain and identify the needs in order to improve students’ learning experience. This lack of technology had a very adverse effect on universities during the early stages of the pandemic. Knowing the effect of digitalization on student learning experience can be the foundation for improvements that lead higher education to better learning quality. Furthermore, an understanding of the effect of digitalization in higher education can be beneficial for the higher education sector itself. Also, policymakers regarding planning strategies and policy suggestions to assist teachers and students through any imminent pandemic (Toader, Safta, Titiriscă, & Firtescu, 2021). This research implements an exploratory purpose to understand how higher education can improve students’ learning experience through digitalization by adopting and maintaining vital necessary technologies within their systems so that in the future, the learning experiences of students can be improved.

1.4 Research Question

In context with the research problem, we derive a set of purposes for our study. In the first part of the research, we aim towards pointing out the importance of digitalization for universities after the rise of the Covid-19 pandemic. In our discussion, we want to provide a clear picture on the success of universities adopting outstanding technologies as compared to those who ignore them and rely on traditional methods. As mentioned earlier, there has been a change in the digitalized technologies that universities are investing in specially after the rise of the Covid-19 pandemic. Apart from that, many of them have started to focus on technologies which offer better distance learning (DL) and remote learning opportunities. In our study, we want to
analyze how these technologies have affected the student’s learning experience at universities. By focusing on the results produced as a consequence of the inclusion of platform-based digitalized services in higher education industries (HEIs) and after deriving a general theory explaining the reasons for the alteration of learning experiences of students after the rise of Covid-19, we aim to have an understanding of digitalization applications in context with HEIs. Hence our main research question is;

“What is the effect of Digitalization on students’ learning experience after the rise of the Covid-19 Pandemic?”

On the one hand, schools need to provide a high quality of digitalized services but on the other hand after the implementation of these advanced digital technologies, there have been major effects on student learning outcomes and experience. Therefore, the purpose of this study is to investigate the student’s perspective on universities’ digital services including teaching, administration, examination, and other service touchpoints after the introduction of digitally platform-based communication between students and the university.

1.5 Significance of the Research

The contribution of a theory explaining the effects of digitalization on students’ learning experience after the rise of Covid-19 can be important for students and researchers simultaneously as it will give out a clear picture on what levels of learning or quality of education can be expected from a university/HEI with a certain level of digitalization. Furthermore, the pandemic has changed environmental settings in a drastic way and has given us the opportunity to study the effect of digitalization and students in a new setting where physical presence of students at a university is not mandatory. The pandemic allowed students to take classes without being physically present at the university and as explained earlier, has influenced the student learning experiences. Similarly, this study will also provide details which can be helpful for students looking for a future university choice with important information as to why it is important to choose universities with extensively adopted technologies and how it could help them in their academics ultimately leading to a bright future career.

Next, we aim to contribute towards the existing knowledge present on the importance of digitalization in HEIs and how it can be successfully implemented in universities. For the
agents and consultants within digitization, this study can point out the vital important technologies that universities adopt for success, thus providing them with recommendations.

Further, this study can also be beneficial for universities and higher education institutions to recognize the importance of digitalization and advanced technological applications in their own environments in order to maximize the quality of education as well as make the university/HEI readily marketable to a larger and globally present pool of students. Furthermore, this research will also give out an idea for universities about the reaction of students towards Distance learning (DL), face-to-face learning (FFL), and Hybrid learning (HL) technologies by analysing the results from our respondents. Lastly, for the deans and chancellors for universities and higher education institutions, keeping in mind that generally, they belong to the Generation X, this study can provide a clear picture on why universities need to change their conventional study methods and benefit from the applications of digitalization in delivering education as well as producing outstanding skilled graduates for the future.

CHAPTER 2

2.1 Literature review

The aim of this chapter is to deliver the theoretical frameworks of this thesis that revolve around the concept of digitalization and how digitalization processes have been affected by the Covid-19 pandemic in a higher education institution or university setting. The most significant process
in higher education is the educational process which involves the collaboration of two areas which are the “society of teachers” and the “community of students” (Muzyleva, Yazykova, & Penkov, 2019). We will be focusing on the shift in the learning experience of students as a result of abrupt actions taken by universities and institutions in order to keep their processes running smoothly after the initiation of new regulations on social meetings by the governments present globally. These rules and regulations varied for different universities but were felt by institutions and universities all over the globe. Although we believe that most universities did a great job in tackling the pandemic in its early stages and maintain a steady flow of classes, many of them completely ignored the needs of students which may not be related to learning but involves their socialisation, communication with their classmates, physical presence at university, etc. Also, we believe that the Covid-19 pandemic creates a niche in the digitalization world and allows us to explore the need of adopting new revolutionary digital technologies which previously would be ignored by universities and higher education institutions and further discuss the effects of this kind of digitalization on the learning experiences of students.

In the literature review, we firstly move towards related literature by exploring the databases in the Web of Science, Primo, Google Scholar and Scopus and ProQuest based on core topics “Digitalization in higher education after the covid-19 pandemic”. Let us now analyse what prior literature speaks about our topic in the followings.

2.1.1 Digitalization in the context of education

Digitalization is going to make a great shift in the economy and society of any environment it is applied to and will affect all areas of individual activities in both developed and developing countries. Digitalization can simply be explained as the transformation of the skills needed by the world’s working population and the young in order to successfully engage in a globalised modern economy (Webb, McQuaid & Webster, 2021). In a learning environment, it is changing the way students learn and also the ways by which institutions deliver education (Webb, McQuaid & Webster, 2021). In recent times the need of digitalization has shown a steady high in national, regional and Higher Educational Institutions (HEIs) all over the world. These HEIs across the globe are undergoing constant transformation so that they can meet the needs and requirements of the society and their respective markets (Webb, McQuaid & Webster, 2021). In this modern era, in order to stay in competition and to stay relevant, universities and HEIs need to develop the capabilities that help them in order to match the needs of the digital age. As an outcome of the covid-19 pandemic, universities, HEIs, governments, businesses and
other institutions have started to rapidly shift their focus towards the acquisition of digital services and hence in doing so, have accelerated a number of previously existing trends. This has led to moving student support, teaching and research into online formats requiring different methods, processes, and skill sets (Webb, McQuaid & Webster, 2021).

With the case of covid-19 pandemic, the education system in many countries faced problems as they needed to lead the lectures through digital technologies. But before pandemic digitalization was presented as a universal good but after it became a need and higher education institutions observed a need to provide digital platforms to their students to minimise influence in their learning process. But on the contrary, studies showed that it is difficult to replace physical education with digital education. For instance, universities have encountered extreme difficulties in the administration and management of the business process since the rise of the pandemic (Pashkus, Bavina, & Egorova, 2020). The new restrictions by the pandemic did not allow staff and personnel to attend the university physically so all their coordination and management moved to an online setting.

2.1.2 Learning

Before we discuss further on digitalization of universities, we must look into the concept of learning and what is in it. Looking at past literature, learning is simply described as changes in the behaviour of an organism that result from regularities in the environment of the organism (De Houwer, Barnes-Holmes & Moors, 2013). Further research into past literature brought forward that learning is defined at many places as the ‘change in behaviour that occurs due to experience’. But it must be noted that the definition mentioned here does not simply mean that the changes in behaviour of an organism leads to the presence of learning, but rather that learning occurs when the organism has experienced an instance and then changes his/her behaviour. Hence, it is a process which is said to be different for different individuals as their capabilities to gain experiences from their surroundings are different. It must also be noted that not all individuals are expected to perform the same provided a specific environment. This difference in experiences may be due to several personal individual factors. Some according to their own psychological patterns may excel in an environment whereas some individuals might find it very hard to cope in the same environment (De Houwer, Barnes-Holmes & Moors, 2013). Hence, it can be easily said that the learning experience for all individuals may differ in the same environment. With the rise of the covid-19 pandemic, the general conventional ways to learn and educate individuals was shifted to a complete online setting. We believe that this
has had a major effect on the experiences of individuals which has changed their behaviours which ultimately leads to a change in their learning experience.

Experiential learning theory describe learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, Boyatzis, & Mainemelis, 2000).

2.1.3 Digitalization for Students’ Learning

In this section we look at digitalization from the human perspective and our review of past literature shows that whenever digitalization or digital transformation is discussed, two different kinds of reactions are observed from the public: one group is excited and satisfied and the other is interested and worried (Chen, Head, Strijdom & Stone, 2022). We can say that this works in a similar mechanism for companies regardless of their size. Higher education is one of those industries that should feel the need to assign infrastructure and provide digital technologies for education. Digital transformation alters the experience of the universities and universities need to understand the necessity of developing new situations (Efimov & V. Lapteva, 2018). Nowadays, especially during and after the pandemic, people use digital technologies for study, work, and for their leisure time and nobody can imagine their life without digital technologies. Similarly, the education system is rapidly changing towards distance learning and cloud computing tools are examples of significant technologies responsible for online lecturing. Today distance learning, tutoring and mentoring sessions can be supervised remotely and promotion and recruiting students digitally is not an exception (Jha & Shenoy, 2016). This means that as opposed to the standard process where students need to be physically present in a university, students can now attend classes remotely without being present physically. Along with that the services of a university can now be marketed effectively using digital channels of marketing which enables them to reach a higher pool of customers.

With the advancement in digital technologies, organisations and industries present globally are increasingly being challenged to keep up with the disruptive market. Universities and schools are also a part of this digital competition. In their pursuit to maximize their pool of students, we often find universities utilizing extensive funds to attain the latest technologies available in the current market. It can be easily said that with the help of sufficient digital technologies being utilized, the quality of graduates produced increases overall. A common occurrence is for leading institutions to decline or fail when technologies change (Crittenden, Biel & Lovely,
This means that when universities fail to keep up with the change in technology, they are less likely to attract many students which will ultimately lead to their decline. Digitalization in this regard comes into play, and it should be the focus of major institutions to direct their attention towards it. In their research, Crittenden and his fellow writers (2018) point out that as many business practices are being meaningfully digitalized, channel interactions have become easier which leads to creating new ways of interacting between businesses and customers, in many cases disrupting normal marketing practices. In our instance, the techniques used to expand and deliver an online course need precise planning. Teachers are expected to establish how to combine the learning from the classroom with the Internet. The urge of using technology in higher education for the purpose of learning is extended outside the classroom. Courses that integrate technology enhance the probabilities of all students taking an active character in the learning experience (Henry, 2008). For the business-customer relationship, target marketing, and the marketing mix, technologies such as artificial intelligence, augmented reality, blockchain, gamification, internet of things (IOT), 3D printing, etc. are being adopted as a regular practice. For example, in the customer service sector, artificial intelligence systems are being extensively applied. Universities and HEIs should focus on such technologies in order to deliver quality education & attract the maximum number of students. We can get a slight idea of what the future holds for us in terms of digitalization if we ponder upon the maturing social media applications, data analytics, optimizations of search engines, and the number of e-businesses present online. It is suggested that “it is imperative that college gain exposure to potentially disruptive, cutting-edge technologies, and more importantly, deeply ingrain the conceptional, inquiry, critical thinking, creativity, and integrative learning skills needed to enhance their future decision making and human capabilities” (Crittenden, Biel & Lovely, 2018). This gives us a huge idea about how important digitalization can be for students when getting their education at a university. Hence, we can simply say that education institutions globally should direct their efforts towards undergoing change in context with the disruption of digitalization technologies.

Sedelmair and Landes (2019) suggest that the students from the newer generation Y and Z bring various different learning habits as compared to their older generation of students. In addition, to cope with the digital world, they are further required to learn new skills and competencies. As a result of digitalization, production processes have been transformed into Industry 4.0 and analogue devices into the Internet of Things (IOT) which directly in turn change and reshape workplaces. As we mentioned earlier, universities have had to adopt new
technologies since the rise of Covid-19. These changes result in a complexity of problems that require new solutions and graduates must cope with these challenges. Hence, the digitalization of processes rather requires so-called future skills (Sedelmaier & Landes, 2019). These skills can simply be explained as competencies learned by graduates which are needed in the future. But, Students in this case did not have to face major challenges when dealing with technology (Sedelmaier & Landes, 2019). This can be said when we talk about the usability of the new technologies provided by the university, but we do not know what impact did it have on their learning experience. As of this point, there is not much research which can be found on what future skills may exactly be needed from graduates in order to maximize from the new technology provided and not hinder their learning experience.

2.1.4 Distance Learning

Before we further dive into digitalization effects on student learning experiences, we must first look into what distance learning is. Previous literature shows that distance education or learning has had a history that spans over two centuries and mainly points out the important changes on how learning is communicated and practised. The social communication methods have been changing over time since the inception of postal services to the availability of sending mail over the internet through the touch of a button, society has embraced new forms of communication through the years (Moore, Dickson-Deane & Galyen, 2011).

Traditionally, face-to-face learning has been a mechanism which universities and higher education institutions have been working upon throughout. Universities along with other institutions dedicate extensive budgets for the inception of state of the art campuses equipped with the latest technologies for the ease of students as well as with the aim to produce high quality graduates. They aim to produce outstanding environments that will facilitate students when they come to the university and attend classes physically. Face-to-face can simply be explained as the process where individuals come to the university or higher education institution physically in the form of students and attend classes where they have to physically be present and communicate with their peers and lecturers. This way of providing education and learning has been successful for universities present all over the globe but it must be noted that the Covid-19 pandemic changed the dimensions of physical interaction between the university and its students. It is the aim of universities to create learning environments that facilitate students and make learning easy for them but the inception of such environments depends on the learning objectives, target audience, access (physical, virtual and/or both), and
type of content (Moore, Dickson-Deane & Galyen, 2011). With the advancement in learning technologies and evolution of associated fields, distance learning and distance education is born. If we look at the past literature, distance learning can simply be explained as the efforts of providing access to learning for those who are geographically distant (Moore, Dickson-Deane & Galyen, 2011). This means that distance learning occurs when the resources are provided to students who may not be geographically or physically present at a university or institution. In our look for past literature, it was observed that researchers have used inconsistent definitions of distance learning and distance education. Moore, Dickson-Deane & Galyen (2002) in their research point out that as computers became more evolved, they became more involved in the delivery of education, which along with other electronic media were the first enablers of distance learning. Hence, distance learning (DL) can simply be explained as a mechanism in which learning resources and learning materials are made available for individuals which may not be physically or geographically at a university or higher education institution.

Lastly, comes hybrid learning which is a result of both, face-to-face learning and distance learning hence the name, hybrid learning (HL). If we look at the bigger picture, the disruption in digitalization ultimately leads to changes in the students’ mind-sets and along with the learning goals of higher education change (Sedelmaier & Landes, 2019). This means that there is a need to adjust and modify learning processes. Digital natives “have little patience for lectures, step-by-step logic, and “tell-test” instruction (Sedelmaier & Landes, 2019).

2.1.5 Benefits of Digitalization for students

There are a number of applications of digitalization upon which higher education institutions should maximize on which can lead to a boost in the learning processes for students. The first and foremost, benefit of various digitalized communication channels is that contents and knowledge becomes accessible and independent of time or place restrictions (Sedelmaier & Landes, 2019). With the help of advanced internet search engines, students gain access to knowledge anywhere and at any time. With the help of IOT, cloud computing has been made possible which connects learning managing systems enabling them to share, distribute and retain information on a mass scale. Hence, as compared to previous years, learning processes have become more effective as they are supported by various digitalized technologies. Furthermore, education has also become more accessible to more people.
Sedelmaier & Landes (2019) point out in their study that with the help of new digitalized applications, mass amounts of data can be processed which, in the case of universities and institutions, boost learning analytics with the possibility to collect, evaluate and personalize huge amounts of data. With the help of such analytics, student behaviours could be monitored closely that would facilitate student learning by recommending them with personalized learning tips, media, etc. on a more individual basis. But it is important for universities and institutions to respect the privacy and security issues when dealing with students in such a manner.

Furthermore, the attention spans of students belonging to the Generation Y/Z are short attention spans which is countered by Micro-learning elements that offer knowledge and information in small bits and pieces making it easier for them to digest information. Repetition of information is made easier on digital platforms which makes it easier for students to memorize facts and vital information. Further technological applications and digitalized methods enable new possibilities for assessments and examinations (Sedelmaier & Landes, 2019).

### 2.1.6 Digitalization and Instructors

As we discussed earlier, as a result of disruptive digitalization many aspects of a university such as incoming students, methods and processes are changed. But Sedelmaier & Landes (2019) suggest that in the education sector there is a major aspect which affects the learning outcomes in a drastic way, and that are the instructors which are predominantly “digital immigrants”. This simply means this group of individuals learn how to deal with digital media and technologies at a later date as compared to the Generation Y/Z which are known as “digital natives”. A very basic example can be that of teachers who rather print documents and make corrections on them physically instead of doing it digitally over the screen with the help of a computer, another example can be of a person who wants to show their team something, instead of sending them a joint email, would call all his/her colleagues in the office.

An interesting point here is that although commonly instructors are “digital immigrants”, they are supposed to enable students interact with various digital medias. It is their duty to enable students to provide them with the skills and knowledge required to deal with these new technologies such that they can maximize output from them in the form of learning. Instructors as digital immigrants shall provide learning skills to digital natives which support new intended learning outcomes in the form of future skills (Sedelmaier & Landes, 2019).
Teachers’ positions in higher education have gone through enormous shifts in recent years and still, the question will remain if technology could change the role of teachers and replace teachers completely. Researchers mentioned that some teachers are very passionate and quick to learn new technologies and are open to developing their digital skills. Some lecturers see technology as a tool for teaching and learning and they are eager to learn the new technologies and add to their competencies (Teräis, Teräis, & Suoranta, 2022). However, after the rise of the pandemic, a study pointed out more than 93% of lecturers felt pressure due to the workload produced by distance education and distance teaching has led to academic overwork and boosted the degree of anxiety and nervousness (Villa, Urchaga Litago, & Sánchez-Fdez, 2020).

Educational technologies enable lecturers to teach from a distance and not essentially within the university. Studies showed that the negative side of digitalization in distance education is the challenge of managing the process of remote studies and lecturers and students in some cases are not satisfied with distance learning (Pashkus, Bavina, & Egorova, 2020). Digitalization and communication have impacted interaction between clients and businesses and at the same time impact consumer attitude. Replacing physical purchasing with digital channels hence increased the flexibility and productivity of communication and allowed the organization to reach more customers. So is the case with universities and higher educational institutions. Digitalization boosted the accessibility of information for both consumers and providers which makes consumers study more about the services or products and choose the best choice. Although this change in digitalization has advantages at the same time increases the competitiveness among providers (Kangas, 2017). Hence, we can easily say that by the adoption of relevant digital technologies by universities & HEIs, their communication with their consumers can become more effective. They can further market the acquired technologies by the university or HEI which will build interest in the eyes of their customers leading them to recruit a larger number of students. Previous research also points out that the educational area broadens ahead of the ICT infrastructure and each student and lecturers have their own personal devices for communication and information sharing (Dneprovskaya, Ruposov, Bayaskalanova, & Shevtsova, 2018) making it easier for them to access information with the use of digitalized technologies.
2.1.7 Digitalization on students' socializing, social health and personal development

Previous studies show that students feel isolated due to the lack of communication, particularly with teachers, because they spend more time at home in front of a computer. The pandemic has forced social distancing which in result has changed the needs and wants of students present globally. Therefore, the adaptation of the teaching method to students’ needs is essential (Toader, Safta, Titiriscă, & Firtescu, 2021). Considering the personal development of students at the universities is one of the factors that teachers and mentors need to consider when they think about digitalization since studying at the university is a significant stage in young people’s lives (Hanappi-Egger, 2020). Students at this stage may not be present at the university so often as compared to pre-pandemic conditions when it was mandatory for them to attend classes and be present physically. Digitalization demands a more accurate model that aims to enlarge social contact as allowed by social distancing regulations while tactically using new and developing technology (Skulmowski & Rey, 2020). Additionally, researchers mentioned that one should not neglect that digitalization has a threat to social health as face-to-face interaction is replaced by online communication, internet addiction, risk of devastating information, and psychological problems (Zakharova, Chernov, Nazarenko, Pavlov, & Lyubchenko, 2020). Their study shows that students are now divided in two groups: quick learners who are readily adaptive to their environment and aim towards learning whereas those who are not ready for shifting from traditional learning to modern learning and they don’t wish to develop their knowledge. It is undeniable that higher education cannot return to traditional education in the form it was before the pandemic due to the introduction of new digitalized technologies which enables students and teachers to communicate over distant learning platforms. Hence, it is very significant that students and lecturers be ready for personal development, self-management, and self-accomplishment in professional development (Bashkireva, Bashkireva, Morozov, Kuraev, & Nebrodovskaya, 2021)

2.1.8 Service experience

Universities are service providers to both fee-paying students and others. From the service theory perspective, service operations management is affected by providing service to the customers or users of the service. Robert Johnston and Graham Clark (2008) on their book on Service Operations Management described that it entails knowing the demands of our customers, supervising the processes that deliver the services, and guaranteeing our aims are
encountered, while also giving consideration to the constant expansion of our service. Service operation covers some of the actions, decisions, and responsibilities in a service organization that the education industry also considers a service organization. From the customer’s point of view, service is the mixture of the customers’ experience and their opinion of the outcome of the service. It is also very significant that customers also have to make feedback on the service. These customers’ feedback contains their time and energy as well as the financial cost. It is worth stressing that there is considerable overlap between outcome and experience. The customer’s assessment of one element may impact their opinion of the other.

2.1.9 Service Outcome

The customer experience comes from direct experience of the service procedure and affects the way the customer is allocated by the service contributor. The customer’s personal communication with the organization, and its customer-challenging staff, know-how, and facilities. The experience consequences in a collection of outcomes: benefits, emotions, judgments, and intentions. The aspects of the customer experience consist of:

- The level of individual interaction
- The receptiveness of the service organizations
- Customer relationship
- The simplicity of entry to the service staff or information system
- The degree to which the customer believes respected by the organization
- Communication with other customers

One of the crucial outputs is the “expected” of the service. Additionally, emotions are powerful psychological or unconscious feelings such as joy, dissatisfaction or happiness. Judgments are beliefs that take shape as a consequence of a customer’s attitude about their experience and the outcome (Johnston & Clark, 2008).

One of the obstacles for the service operation manager is that, for numerous services, there is no transparent border between experience and the outcome. The education services are different from other manufacturers which in education services the providers should deliver the program and the way they are delivering. It is very significant that organizations to manage various customers and understand them. At the same time, motivating innovation in the service
organization by what already exists and trying to develop it (Johnston & Clark, 2008).

Figure 1: Service Process & Outcome

CHAPTER 3

3.1 Research philosophy

Research philosophy helps us with the issues that need to be discussed and how we, as researchers understand the nature of reality and knowledge and assist us to understand the assumption, in result, research philosophy affects the research methodology and its outcome (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). To show how our research process has developed, we are going to use tree concepts which are ontology, epistemology, and
methodology and makes the connections between them. The philosophy of our study delivers an insight of how we as researchers, adopted the view and values according to our individual assumptions of reality and existence and epistemology helps us in how we think the knowledge is created (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018).

We think the world is social activity and consists of teachers, students which the significant distinction between the two are the social world require human action to exist. Since human activity generated affects things like teachers and students, maybe we think is easy to change the social world. If humans established the role of teachers and students, and we are human, then it should be a simple process for people to change the role of teachers and students. In our study, we are going to use a paradigm that can help us to understand insight, how is the experience of students toward learning experience. At the same time it is very important for us to understand the human perspective while reality also is important and remains mind independent.

Ontology consists of four dimensions: (1) Realism, (2) Internal realism, (3) Relativism & (4) Nominalism, as stated by Easterby-Smith et al. (2018). Critical realism provides a structured way of insight into social and organisational problems and argues that humans can feel an impression of the real world (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). Therefore we opt for critical realism in our study because we are trying to capture students’ thinking and understanding. Critical realism is the perfectly suited paradigm and concentrates on understanding rather than describing social reality and assists us toward a practical way to deliver clarification for our research question.

Regarding epistemology, we opted for social constructivism, because the idea is that ‘reality’ is defined by people rather than by objective and external factors, and therefore it is significant to value the way people make sense of their experience (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). We believe that an in-depth interview can help us to develop new understanding and theories and understand the respondent opinion, feelings, and expression of students. With reference to our research question, we consider a high variety of perspectives if we would like to come up with sufficient valid results.
3.2 Research Design

The research philosophy is followed by a symmetrical research design providing the plan to answer the research questions. Research design can be explained as the arrangements and the conditions for collecting and analysing data (Kothari, 2004). Generally, a research approach is divided into three categories which are, deductive, inductive, or abductive approaches. All approaches deal with the use of theories. The deductive approach aims to test the theory from the assumption and hypothesis and is mainly connected to quantitative research (Easterby-Smith et al., 2015; Arksey & Knight, 1999). On the other hand, the inductive approach has intended to build theories based on gathered empirical data. It enables subjective perception and reality, which is the reason that it is mostly associated with qualitative studies. The abductive approach focuses on weaknesses combined with the deductive and inductive approaches (Easterby-Smith et al., 2015; Arksey & Knight, 1999). Grounded theory (inductive approach) is when there are no numbers and is a qualitative method that allows us to investigate a certain phenomenon or uncover new theories that are based on the collection and analysis of real-world data (Smith, Thorpe, Jackson, & Jaspersen, 2018). With this explanation, we believe that for the purpose of our study, the inductive approach is more relevant than the deductive approach. With the inductive approach, we can focus on the problem by investigating, through different models to generate theories from the research based on the empirical data. Furthermore, with the use of the inductive approach, researchers can find new information and data for the research (Greener, 2008, p. 16). Therefore, inductive research in our study is going to help us extract a conclusion by observing the student’s perspectives and insights and making various assumptions regarding the learning experience of students.

As for exploratory research design versus descriptive, based on the topic of our study we are going to choose exploratory research design over the other to find out the effects of digitalization on the learning experience of students after the rise of Covid-19. Additionally, exploratory research design will help us to discover ideas and insights by interviewing and deeply exploring the problem (Kothari, 2004).

In this study, only the qualitative research methods will apply because we believe that it will help us to understand the richness, depth, and student’s experience toward digital services provided after the rise of the covid-19 pandemic. In qualitative research we are going to analyze data and materials, cases to answer our questions and furthermore, we are also going to have in-depth interviews with students. The reason that we are going to do in-depth
interviews is that first, it proves to be very useful for the collection of qualitative data and secondly, with in-depth interviews, we can use open-ended questions which allow us to deeply understand and explore the student experiences.

3.3 Research Method

Critical realism is linked with both qualitative and quantitative research design, determined by the phenomenon of understanding rather than describing social reality (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). Additionally, following our philosophical viewpoint and research question, we opted for a qualitative research design. It's worth mentioning that our empirical research's purpose is to increase insight and understanding of how digitalization effect students’ learning experience. Therefore, we believe that exploratory qualitative research designs are perfectly linked with our aim. Accordingly, as declared in our problem formulation, there is a gap that we have determined that has been left investigated primarily in the student’s learning experience on how digitalization affects the process of learning after the induction of distance learning and platform-based technologies.

As mentioned earlier, we are going to have open-ended interviews with students to understand the reality towards their learning experience after the pandemic. Additionally, the student’s learning experience has been broadly discussed in the literature and explained in our problem formulation, but a lack of information is found in previous research which helps us in understanding how higher education institutions can develop their technology in order to increase the quality learning experience of students, which we think is significant to investigate into this phenomenon and discover an evolving pattern from the data attained.

3.4 Sampling method

Data collection is very significant in research because it is aimed to provide broad insight of the theoretical implication of the study. The sampling of respondents is pivotal for the quality of research and will certify how and why specific respondents are chosen for the study (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). Therefore, to define the accuracy of our research we are very careful with the sampling method to keep the quality of our research high. To answer our research question our interviewees should meet particular criteria. Our initial sampling criteria were that interviewees had to be either students during Covid-19 or students which have experienced some form of distance learning. This focus of specific sampling units
needed to fulfil the research purpose categorizes our sampling strategy as purposive sampling and it perfectly fits with qualitative research (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). Accordingly, we choose students who are studying in Sweden for higher education either in bachelor's or master's programs. We asked some of our friends and classmates to be our interviewees for this study. A non-probability sampling design reduces inferring a total population from the comparably small sample size. Nevertheless, this can be offset by including different participants and therefore increasing accuracy (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018).

To find more sample participants, we will be engaging in snowball sampling where we will ask participants to introduce us to their friends who were studying during the pandemic, or they are students of distance learning programs. This will help in finding different participants which fall in the same categories, qualifying for our interviews. Snowball sampling initiates with someone who meets the conditions for entry in a study, who is then requested to name others who would also be qualified (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018).

3.5 Inclusion Criteria to choosing our participants

- The participants must be students during the pandemic and experience remote learning
- The participants must be either Bachelor or Master students
- The participants must be students in Sweden and experienced in studying in one of the Swedish universities during the Pandemic
- The Participants chose based on various nationalities who experienced remote studying in Sweden
### 3.6 Case selection

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Level</th>
<th>Program</th>
<th>University</th>
<th>Age</th>
<th>Nationality</th>
<th>Duration of interview</th>
<th>Language</th>
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<td>Student 1</td>
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<td>English</td>
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<td>English</td>
</tr>
<tr>
<td>Student 3</td>
<td>Masters</td>
<td>Supply chain &amp; logistic</td>
<td>Jönköping</td>
<td>24</td>
<td>Pakistan</td>
<td>50 min</td>
<td>English</td>
</tr>
<tr>
<td>Student 4</td>
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<td>Digital Business</td>
<td>Jönköping</td>
<td>32</td>
<td>Pakistan</td>
<td>53 min</td>
<td>English</td>
</tr>
<tr>
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<td>Iran</td>
<td>56 min</td>
<td>English</td>
</tr>
<tr>
<td>Student 6</td>
<td>Masters</td>
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<td>27</td>
<td>Iran</td>
<td>55 min</td>
<td>English</td>
</tr>
<tr>
<td>Student 7</td>
<td>Bachelor</td>
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<td>38</td>
<td>Czech Republic</td>
<td>56 min</td>
<td>English</td>
</tr>
<tr>
<td>Student 8</td>
<td>Masters</td>
<td>International Marketing</td>
<td>Jönköping</td>
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<td>Dubai</td>
<td>50 min</td>
<td>English</td>
</tr>
<tr>
<td>Student 9</td>
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<td>22</td>
<td>Hungary</td>
<td>50 min</td>
<td>English</td>
</tr>
<tr>
<td>Student 10</td>
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<td>Business &amp; Economics</td>
<td>Jönköping</td>
<td>22</td>
<td>Sweden</td>
<td>50 min</td>
<td>English</td>
</tr>
</tbody>
</table>

### 3.7 Data Collection

The data collection method can simply be said to be the steps taken in order to attain vital data for the purpose of our research. In this research, we are concerned with two main types of data which will help us to reach the results. Primary data is the type of data that is collected for the first time, and it is original (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). This type of data is collected without going through any previous resources. Primary data is collected by the researchers from different respondents to achieve new perceptions and insights into the researched topic (Easterby-Smith et al., 2015; Arksey & Knight, 1999). In contrast to secondary data, primary data has the benefit that the researchers can have control over the design and...
content which increases the quality of the data (Easterby-Smith et al., 2018). In addition, primary data allows us to collect data that is extremely relevant and particular to our study.

For the purpose of our study, we believe that interviewing students belonging to different levels of education in a university can allow us to have a better understanding. As these digitalized services provided by the university were experienced by both types of students i.e; the undergraduate and postgraduate, we believe that by interviewing a number of students belonging to both groups, we can have a better understanding of their ideas and experiences. Even during the initial stage of our research, we carried out a sample interview with a bachelor’s student from JU in order to understand the initial general perspective of our respondents and get an idea for our interview questions where we used a sample for the questions which we wish to include in our final interviews. In the same context in order to generate solid results, we believe that by carrying out in-depth qualitative interviews, we can find out the perspective and experiences of students on digital services provided by higher education institutions. We carried out 10 in-depth interviews with students studying in Sweden. Interviews were carried out with the help of open-ended questions which gave freedom to the respondents by giving them the opportunity to answer comfortably using their own words and commence a detailed discussion rather than blunt questions and answers. We later compare the answers to have a better understanding of the picture and derive results in chapter 4 of this study.

Now for the purpose of secondary data, we are going to collect data through the internet, articles, journals, case studies, books, and any information that can help us to get answers to my research questions. In our observation, it was somewhat of a challenge to gather the vital information that we needed for the purpose of our study. In our search for articles present online, we took the help of several search engines such as Google Scholar, ProQuest, etc, and were able to find the necessary information and past research from these sources. One major observation in our search for existing literature was that where our study focuses on the effects of digitalization on students’ learning experience after the rise of the pandemic, there were very limited studies that were carried out in a similar setting where researchers included the effects of the pandemic in their research. We observed that most of the literature present was based on a pre-pandemic setting where our research aims towards finding out the effects in a post-pandemic setting.
To answer our research question, we focused on three main areas in our interviews. The experience of students in lectures, their experience in communicating with the lecturers in order to ask questions and receive feedback and lastly about their interaction with their peers when they had to perform group projects. These were the main elements that we wanted to discuss with our respondents and observe their reactions towards the change in technology provided by universities. We also wanted to find out in our interviews that how does the introduction of distance learning platforms effect the motivation of students to attend classes. The reason we are going to use semi-structured interviews is that our goal is to attain valuable information and insights, therefore, semi-structured interviews help us to blend structured and unstructured interviews. Combining those two structures gives interviewees feel more comfortable reflecting upon their own personal experiences (Smith, Thorpe, Jackson, & Jaspersen, 2018).

As we mentioned earlier, study delivery methods have changed as a result of the pandemic and students were heavily affected by this change. Our aim in our interviews was to identify the terms in which students’ learning experiences have been affected as a change in technologies provided after the pandemic. Students coming from different EU & Non-EU countries were interviewed. Our interviews mainly contained 20 in-depth semi-structured interview questions whereas in some of the interviews a few questions were generated on the spot as a result of idea generation from the answers provided by the respondents. Thus we can say that some of our interviews were structured whereas the others were unstructured. We had a set of 20 questions that were asked from all the respondents but depending on their background, a couple of questions were added in some interviews.

### 3.8 Data Analysis

We began with transcribing the primary data from audio to digital documents and then reading the transcript of every interview to become acutely aware of the data. As all the interviews were conducted in English, therefore the coding process also was conducted in English. Then, we investigated the collected data for attendance, meaning, and correlation of main ideas and concepts that are appropriate to answer our research question (Easterby-Smith et al., 2018). After we made sure that we accomplished a good understanding of the data to the point that we were capable of distinguishing related issues, we used pre-established codes conducted by our research question while taking inspiration from existing, relevant research. Both researchers tried to conduct coding of data separately in order to make sure different perspectives of the data were observed. Afterwards, due to the fullness of data, we compared and blended the codes.
into first-order categories. With the aim of reducing any form of personal biases that might happen during the separate coding processes (Easterby-Smith et al., 2010). By combining the empirical data, our first-order categories were designed and constructed into second-order categories, produced from their correspondence and relation. This method was employed to accomplish a broad level of extraction, which, in accord with critical realism, assures that we achieve as close to the real as possible (Easton, 2010), rather than the reality created by the participants.

Furthermore, along with primary data, we comprehensively collected and studied secondary data such as articles, dissertations, reports, conferences, and books to improve a significant theoretical background and a comprehensive understanding of our research topic and related theories. Keywords used in the search for literature include “digitalization”, “distance learning technology”, “learning”, “remote learning”, “student experience”, “hybrid learning”, “remote education”, “higher education” and more. We also included in the search student's learning experience after the rise of covid-19 pandemic.

We associated different related theoretical areas and indicated the focus of our literature review to find relevant articles. We looked for literature to support different aspects of digitalization on higher education and after all the result of digitalization on student experiences in higher education after the rise of the covid-19 pandemic.

3.9 Research Quality

To execute credible, meaningful, and interesting qualitative research we needed to consider various quality certainty aspects. To achieve a comprehensive and systematic study, researchers should thoughtfully and clearly approach their research (Guba, 1981) and we are going to strengthen the trustworthiness of our study by providing credibility, transferability, confirmability, and dependability. Even though it is challenging to assess the quality of qualitative research and its theoretical classifications in some practices, we aim to explain our quality principles in this research for transparency and trustworthiness.

3.9.1 Credibility refers to the sources and quality citations that bring trustworthiness. It is very vital to have reliable sources in order to increase the research credibility (Lincoln & Guba 1985). To increase the credibility of our study we produced a transparent set of criteria when choosing participants students. Additionally, both researchers are involved in data collection
and data analysis in order to review and transcribe the interview transcripts. We as researchers also made sure that we looked at the research topic from several perspectives to decrease the bias enforced by the statements of single interviewees. To minimize bias and prejudice we include the opinion of experts to objectively challenge the work i.e., peer-examination. Otherwise, they could become too biased to evaluate whether they are yet on the right track (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). Finally, we applied data triangulation by developing our data collection via various trustworthy sources such as books, websites, and universities’ social media pages (Instagram). We employed triangulation to present us with more secondary data sources and various perspectives that let us do an in-depth analysis through cross-examining the findings.

3.9.2 Transferability Qualitative research defines the viability of research and how the research study can be applied to different contexts. Transferability can be accomplished by using solid descriptions and appropriately contextualizing the collected data (Guba, 1981). To make sure whether the study can be transmitted to other settings is the researchers’ responsibility to make sure about a detailed and broad description of the methods and conditions in which the data was gathered. Therefore, our study delivers a detailed explanation of the data collection method and data analysis process. Additionally, we present a purposive method of sampling where a strong explanation of the criteria used for case selections is coherent with transferability findings (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018). To establish expressive context for the case studies, we made sure to deliver enough background information about participating in interviews in terms of programs and distance learning, duration of studying remotely or hybrid, so that readers can determine if our method is appropriate for another context.

3.9.3 Confirmability is the tactic for enhancing credibility and also mainly applies to guaranteeing confirmability which entails whether the result of the study can be verified by other researchers. Confirmability also refers to the concept of objectivity and impartiality of the researchers (Guba, 1981). Therefore, the explanation must not be in accordance with researchers' perspectives and distinctions, but it must be based on data. To strongly consider our role and avoid biases, we made sure that both researchers were present in the data collection and data analysis process, and engaged in the coding process, and after analyzing each interview transcript, we double-checked and shared our reflective opinion. Additionally, while conducting interviews, we are careful interviewees did not misunderstand our questions by
clarifying and explaining if needed. Lastly, we were inclined to double-check our methods and questions related to the research questions and the purpose of the study.

3.9.4 Dependability, which describes the continuing consistency of our outcomes, can be guaranteed via different processes ranging from overlapping methods, conducting an assessment trail, or step-by-step replication (Guba, 1981). Therefore, to make sure about the stability of our findings we took an overlapping method step such as conducting interviews in pairs but commencing the coded process independently. We merged as well as centralized the information gathered later. Moreover, we continually reviewed our progress and challenged the analysis of our empirical findings and combination with theory.

3.10 Ethical Considerations

The understanding of ethical implications is essential to conducting reliable and accurate research. Likewise, we employed an ethical foundation to secure interviewees’ interests and data and make sure the integrity of our study and of the research community (Esterby-Smith, Thorpe, Jackson, & Jaspersen, 2018).

Harm to Participants: We made sure that interviewees were not harmed, we made an engaging, humble, and relaxed interview environment, always being concerned about the interviewee's physical and psychological health at the time of the interview. Although the restriction of the pandemic was eliminated, we conducted the interviews remotely via zoom. Where in two instances, as per the ease of the respondents, interviews were conducted in person. To help our interviewees not be uncomfortable we start with the introduction and classification of the topic. We designed our questions with simple words and understandable and tried to stimulate conversation where interviewees speak openly. We also stressed that the personal data is confidential, and data is not going to be forwarded to third parties and the data is used for analytical purposes only.

Dignity: The interviewee was respected by delicately listening and stressing that all answers are valuable understandings. We allowed the interviewees to talk freely, did not stop them, and respected their beliefs without judgement.

Privacy: We were very careful to protect the privacy of our interviewees by not asking personal questions as the personal information of the interviews also was not relevant to our study and
research question. Additionally, we did not push interviewees to share information they were not willing to mention.

**Confidentially:** We ask for permission from interviewees to record their answers via Zoom and assured them that this data is going to be used for internal analysis reasons only.

**Deception:** In order to prevent deception and make sure that interviewees understood the reason for them to share information, we explained our purpose and the whole purpose of the research in detail before the commencement of the interview.

**Declaring affiliation:** We made sure to communicate clearly that the research was being conducted by us master's students at JIBS as part of our assessment to assist candidates for the academic degrees and learning experiences.

**Reciprocity:** As there is no academic research on our research topic, the purpose of the research was not only academic interest, but also our results can contribute to the general understanding of the effect of digitalization on students' learning experience and can be a benefit for universities.

**Misinterpretation:** In order to prevent bias and misinterpretation of the conducted data and incorrect findings, both researchers engaged in the process of data collection, coding process and data analysis. And lastly, we discussed our perspectives throughout the research process. In this way, we reduced the risk of misinterpretation.
Chapter 4

“What is the effect of Digitalization on student's learning experience after the rise of Covid-19 pandemic?”
4.1 Data Structure

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<th>2nd order categories</th>
<th>Themes</th>
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<td>Attentiveness</td>
<td>Physical class</td>
<td>Effect of digitalization on</td>
</tr>
<tr>
<td>Motivation</td>
<td></td>
<td>study methods</td>
</tr>
<tr>
<td>Lack of clarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenient</td>
<td>Zoom Streaming</td>
<td>Effect of digitalization on</td>
</tr>
<tr>
<td>Customized platform</td>
<td></td>
<td>teacher's feedback</td>
</tr>
<tr>
<td>Adaptability</td>
<td></td>
<td></td>
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<td>Absenteeism</td>
<td></td>
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<td>Time saving</td>
<td>Student communication</td>
<td>Effect on engagement</td>
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<tr>
<td>Dissatisfaction</td>
<td>to teacher</td>
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<td>Difficult to reach</td>
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4.2 Empirical findings and analysis

The aim of the following chapter is the demonstration of the empirical findings of our study. These findings were in accordance with ground analysis and inductively obtained from the conducted interviews. The categories and themes that arose from the codes, build the foundation for an emerging theory answering our Research Question.

As defined in Chapter 3, our data analysis was developed in 19 first order codes, from which we obtained 7 second order codes and 4 themes. Systematically building subcategories and categories allowed us to create an explained overview of our research to generally answer our RQ (Miles et al., 2014). We did not objectively present our findings but at the same time analyze the findings also involving our own values and assumptions. After discovering the main empirical findings of the research, the procedure of theoretical re-explanation was completed in which empirical data was re-explained using theoretical concepts found in the literature to well describe the presented phenomenon (Fletcher, 2016). We derived Four overarching categories: effect of digitalization on study methods, effects of digitalization on teachers’ feedback, effects of student engagement and lastly, effects on teamwork of students.

4.3 Effect of digitalization on study methods

This part of the findings intends to deliver insights about how digitalization after the pandemic has altered the study methods of students and has altered the way students attend their classes. As a result, the hybrid learning phenomena has recently arisen due to the pandemic where students attend universities both physically and in an online manner. The factors that effect on the learning experience of students are broadly categorized into (1) Physical classes and (2) Zoom streaming which together make up the hybrid learning experience.

4.3.1 Physical Classes

One of the most prominent effects of the Covid-19 pandemic is that students were no longer able to attend physical classes and had to look towards digital alternatives to take part and contribute to their courses. Student 10, one of our respondents explains her situation in the early pandemic days as “It depends on which stage of the pandemic but the mostly it’s been like online. I’ve done it both here in Sweden and also when I was on my exchange, I studied in Austria, and everything was pretty much online. So, it was mostly online, mostly online till now. In the end it was a bit hybrid.” So, from her statement we can easily see that in the initial stages
of the pandemic the studies had entirely shifted online for this student in both regions, Sweden as well as Austria and it had only been made possible recently where they could attend a mix of both physical and zoom classes.

Our findings showed that when the classes and lectures are conducted in an in-person physical setting, students are inclined towards feeling more professional which increases their focus in the class. This comparison is done between classes taken from home or zoom where we experience from our results that many students did not feel the same level of professionalism as they would in a physical class environment. Students number 5, says “When classes are online, the vibes are not professional, and as a result, you cannot get a professional outcome.”

Upon reviewing answers from other respondents, we get a pattern which shows that the attentiveness of students is significantly more in physical classes as compared to distance learning hence we gave similar quotes the code of ‘attentiveness’.

Upon reviewing data received from our respondents, it was important to note that student motivation was directly affected as a shift in digitalization after the pandemic. Some of the students believe that because of the shift towards online classes, their motivation to stay focused and connected to a course was affected majorly. This effect was made apparent because of when students did not have to physically attend classes as one of our Student 10 says: “The most challenging part for her was to find the motivation to attend online classes and work on coursework as now I have to stay at home instead of being at campus daily which make me postpone my work.”

As a result of the pandemic, students all over the globe were affected and it had a significant effect on their learning experiences. All of our 10 respondents were majorly affected when we talked about their academic journey and all 10 of them had their physical classes moved to an online setting. Let us now analyse what affect does Digital platform-based classes (Zoom Streaming) have on the learning experiences of the students based on the responses from our interviewees. Further in our findings we will look into detail what affect does the lack of physical classes have on the student’s engagement in classes and their team building practices and how does the lack of physical classes affect their interaction with their peers and teachers.

We see in some cases that for the technical students mostly belonging to the engineering and health school, had a different experience. This difference is due to the fact that in their courses it is mandatory to visit laboratories and there was no alternative for them even during the early
stages of the pandemic. Either their classes were completely called off or they were given standard operating procedures (SOPs) to follow when visiting their labs. But as a result, the learning experiences of such students differed to those having complete online classes. Our respondent says “interactive, creative and they did not feel the lack of socializing. Student number 6: “As I said I am studying Molecular Biology so even during the lock-down I went to the laboratory together with other students. So, meeting students in person helped me to learn many things and feel not lonely during the pandemic. I was lucky I could study in a hybrid setting.” From this statement we can clearly see that a hybrid mix of study had a positive effect on the student where she along with taking help from her peers in learning new things, also had a psychological affect where she was left feeling more sociable.

4.3.2 Digital platform-based classes (Zoom Streaming)

As we explained the shift of physical classes to online classes as a result of the rise of Covid-19, these classes were taken online, and students were provided with various platform-based software where Zoom is the one most widely used worldwide. This shift in classes meant that students no longer had to visit the university physically but due to the restrictions put forward on the social lives of the general public, universities inclined their students to stay at home and continue to join classes via zoom. Let us now analyse what our respondents felt about this shift.

On the analysis of the answers from our respondents, we observe that most our respondents were readily adoptive towards the platform-based technology provided by the university where they had to migrate from their physical classes to a digital classroom setting. Our analysis shows that it may be a confusing for some in the initial stage, but students are quick in understanding this technology and all of our respondents in successful in attending their classes through zoom.

Student number 4: “Initially it wasn’t a comfortable and will it feel like meeting online is taking too much time. But after like a month it became more convenient”.

Statement by student number 4 points out to the fact that initially this shift may have caused confusion and distress among students but as their usability grew, they were able to better make use of this technology, where in the end it was more convenient for her to attend classes over zoom.
But many students from our pool of respondents point out that their learning experience was altered with the shift towards zoom or platform-based classes where it was very hard for them to stay concentrated in the classes as compared to physical ones. Students had to attend their classes by looking at a computer screen for extended amounts of time where many respondents had to point out that their concentration was greatly effected and they did not focus in their classes as they would in a physical classroom. Along with concentration issues, in some instances there are technical difficulties which both, the lecturer and the students had to face during online classes. These types of technical difficulties affected the motivation of some students to attend the classes. But after overcoming such obstacles, it was observed that students enjoy studying through zoom where they believe that it makes their lives easier and more convenient. Studying over platform-based applications allowed many students to cut down their logistics where many of them utilized this time for further study. Along with time saving, many students believe that studying over zoom was a great convenience enabling them to attend most of their classes in a course where they would miss a day or two because of personal commitments. Let us see what our respondents had to say:

*Students number 2:* “To be honest being on zoom sometimes you can lose your focus, but I prefer it because going to class gives me a lot of anxiety and you have to spend a lot of time preparing”

*Student number 8:* “I will still stream the lectures on zoom and I've never missed the lecture and I got an ‘A’ in that course because I was attending all of my lectures and tutoring session”

*Student number 3:* “The technology has made it quite convenient for the people who are unable to come to the physical classes, because the few people I know, they were living in other cities and the technology has made it so easy for us, so doesn't matter where you are and what is your condition, you can just turn on your laptop and take a class”

These statements point out that although Zoom streaming and platform-based classes may bring initial confusion and technical difficulties, but students in the long run can benefit greatly from the applications of platform-based learning.

Upon further analysis of our data, we observed that many students also mentioned that although zoom in an application which was used an a result of an emergency response towards the continuation of classes, students believe that if universities divert their resources towards developing their own platform instead of outsourcing platform-based services from third
parties. With the introduction of such platforms, student traffic over an application could be monitored in a more efficient manner, along with that technical issues could be greatly resolved as the workings and applications of the platform-based technology would be in line with the needs of the university. Furthermore, a university could curate such a platform based on needs of their students.

_Students number 5: “It would be really great if every university have the capability to run their own online platform”_

Based on our analysis of the respondents provided by students, we observe that the Covid-19 pandemic has changed the traditional teaching styles towards a more digitalized teaching style which students had to adopt in order to stay productive in classes. This shift in teaching and learning styles did not have an alternative as mentioned earlier, all of the study methods were shifted online and students were given online access to their course material and classwork. But now with the passage of time, the situations which were arisen as a result of the pandemic are calming down and people are expected to return to their normal lives at this point. We would like to point out in our research that although Covid-19 provided adverse situations for students, teachers and universities as a whole but with the passage of the pandemic, we have been introduced to new digital technologies which have altered the learning experiences of many students. Students now believe that online classes and hybrid learning opportunities should be a fixed part in the workings of a university as it offers diversified online learning and also creates ease for students. We observed that at this stage, along with enjoying classes physically, students have started to understand benefits of having classes online. They believe that universities should keep in mind the needs of their students to participate in lectures physically but also should provide them with opportunities to attend classes from wherever they want. Hence, there is a increase in the demand for hybrid learning mechanism. This is due to the fact that students now have experienced that they can continue to attend classes without being present physically at the university and expect universities and higher education institutions to not make physical attendance mandatory but provide them with opportunities of hybrid learning. Universities and higher education institutions should develop a learning environment which blends both in-person learning environments with online platform-based learning experiences.

Based on student’s response Covid-19 pandemic changed everything from traditional to digital learning and students could adapt their learning style from traditional to digital study. But now
everything back to the normal and students needs to participate in lectures physically. Some of the students think now universities should consider students’ desired and provide both hybrid and in-person choice to students. It is necessary now students have the option to choose either participate the lectures in-person or learning through zoom streaming. Students think universities should not force students to participate the lecturers in-person, instead they should design learning environment that blend the best of both in-person learning environment and online learning. Our respondents say:

_Student number 8: “I am student at the university so you can call me their customer. The university should satisfy my needs. And right now, I feel very disappointed that I don't have lectures online, so I'm missing my lectures and I would really prefer to have lectures online. Because it would be so much more convenient”_

_Student number 1: “I think universities should try and improve on the integration aspects and the engagement aspect and also think that they should maybe try and look at different technologies even you know I don't think zoom needs to be this kind of silver bullet that it has been”._

4.4 Effect of digitalization on teacher’s feedback (on teacher-student relationship)

Regardless of the considerable resources assigned to integrating technology in classrooms, many lecturers have battled with disruptions that these applications and devices have brought as a result of digitalization. The Covid-19 pandemic in the beginning may have subjected the inadequacy in lecturers’ ability to assist in teaching outside the classroom even if they were not confident or skilled enough in using such technologies. In simpler words, their traditional teaching styles which lecturers and teachers have been refining throughout the years were abruptly changed and shifted towards an online setting. These technical difficulties brought much confusion among students along with their motivation to attend and stay focused in classes. One of our respondents says:

_Student number 1: “The teachers didn't get nearly enough information on how anything works, I think. There was generally a lot of confusion by lecturers of all ages. Because I think that it was something that no one really knew how it was supposed to work, how the lectures and seminars were supposed to look like and function”._
This statement gives us a brief idea on how the situation was in the early stages of the pandemic where along with putting their best efforts, lecturers and teachers were initially in a gray area on how to conduct classes online. We believe that this may have affected the learning experiences and learning outcomes of students during the pandemic. Another respondent adds:

Student 10: “At the beginning of the change from traditional to online meetings, it was a lot of waste of time. At the beginning of the class for 30 minutes, the teacher, struggled with technical things”.

We believe that this effect of the change in learning experience of the students cannot be blamed on the lecturers as even the students believe that they put their utmost efforts in keeping the classes streamline but these are issues that arise with the usability of advanced digital technologies. Our respondent says that:

Student 10: “I wouldn't say it was only like their technical skill level that had to do with it, but also, they're like they're very familiar with teaching like a class in the classroom and doing it one particular way. And it was like kind of, it seemed to do it another way. I wouldn't say and these things requires a high technological level, but it was just like another way for them to do their lessons, which became difficult”.

By this statement it is apparent that along with the learning styles for students, the teaching methods were also affected which we believe has a major impact on the learning experience of students during the pandemic. In our opinion, and upon analysis of the respondents, we believe that with the introduction of platform-based classes, the feedback from teachers is an area that has been greatly affected. Since we mentioned the change in the teaching and learning styles, from the shift from physical to online classes, the way teachers interacted with their students and gave answers to their queries also changed and had an effect on the learning experiences of students.

Student number 4: “Well, I would say that the teachers were there to help, for sure. But, I would again give the example of that finance course like I would have preferred that teacher was using some white board in front of me and doing the solution and stuff while he was struggling to type in the answer and with all those signs, it was getting very difficult for him and eventually, I stopped asking the question and I was like, fine, I will just try to figure it out on my on my own”.

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This statement gives us a brief insight in the communication between students and teachers during the pandemic. The question was asked by the student and the teacher was also willing to provide the answers but as a result of the digital platform-based technology involved, it was hard for the lecturer to deliver his/her message and also for the student to completely understand what was being explained to them. Hence, we believe that this is a very good example which shows how the learning experiences of students were affected as a result of digitalization after the rise of the Covid-19 pandemic.

4.4.1 Student communication to teacher

Taking a look at the student’s communication with teachers during the rise of the pandemic, majority of the communication from student-to-teacher included non-verbal(online) communication, which was done in the form of zoom meetings, online discussions, email & phone calls. The chance to meet you lecturer/teacher physically and ask questions were almost none as a result of social distancing protocols. Hence, in order to communicate with their lecturers/teachers, students had to make use of digital technologies which enabled them in having successful interactions with their teachers online. Upon the analysis of the data collected from interviews, we observed that most of the students were happy with the way they communication with their teachers in terms of course resources, materials, feedback and clarification. While a small number of students showed their dissatisfaction where they mentioned that extra time was required in order to get relevant answers from their teachers as compared to physical classes where they would get a reply to their question sent via email after a few days. One of our respondents, when asked if he received sufficient feedback during his remote study, had to say:

Students number 1: “No, I really don’t think that I got enough feedback in terms of everything that I had submitted and everything that I had done. I think that was really a lack of feedback, which also made online learning and then just learning at a distance are generally more difficult because I think that was really a general lack any kind of feedback for anyone involved. And I think that did also impact learning. And I think that people now expect less feedback than they would have maybe in a in a classroom environment.”

Whereas, when we asked the same question to another student;

Student 9 says: Yes, I think most teachers were always helpful and always said that if we have any more questions afterwards, just email them and they will reply
Hence, we can observe that although the communication between teachers and students were affected, their level of effect was different for each student pointing out a change in their learning experiences. While some students observed negatives, other observed positives which may rely on many other supporting factors such as personal involvement of teachers, personal involvement of students etc.

4.4.2 Teacher feedback to students:

While some of the students indicate that most of the teachers were accessible and supportive in regards to content-specific questions, problems or clarification of assignments, a small portion of students think that some of the teachers were very late in their responses and they had to find alternative solutions of their answers. One of our respondents when asked about lecturer feedback said: “it mainly affected my attitude towards course supervisors because sometimes you could not get any feedback or answers to your questions for long time or they just decide to ignore you and this was an inappropriate situation that you don’t get answers for your questions”. This statement gives us an extent to the frustration caused by communicating to lecturers and teachers over digital platforms instead of communicating to them physically in a direct manner hence altering the learning experience of students.

Upon further analysis of the data from other respondents, we observed that students believe that the feedback in physical classes is much more effective and time consuming when compared to online platform-based communication. Along with sending emails and queries, many students had to mention that receiving feedback during classes was also very difficult as their ways to interact with their teachers had changed which will be explained further in the study.

Student number 2: “Sometimes you could not get any feedback from your teachers or answers to your questions for a long time or they just decide to ignore you and this was an inappropriate situation that you don’t get answers for your asks and you have decided then by your own so this effect on your first learning and then your score”

Student number 8: “Well, to be honest, yes. It was more helpful because you can just send an email to a teacher saying that you know what I'm struggling with this part. I need help and she will be like OK, I'm sending you a zoom link, let's chat”
Some of the students also stressed that it was very productive when they could send email to the teachers and ask for help and they could immediately talk through zoom and this is very productive way compare to before pandemic because in-person meeting sometimes you have to book a meeting three days or a week in advance and come to the school from another city to meet your teacher but technology changed everything and you do not need to spend lots of time in logistic and you can right way enter to the meeting.

4.5 Effect student engagement in classes:

While it is apparent that there is a significant different in the way academic classes were carried out as a result of the pandemic, this shift has had a significant effect on the engagement of student in these classes. This engagement can simply said to be their level of interaction with their lecturers and peers. We observed that almost all of our interviewees felt less ‘engaged’ in these classes while using distance learning platforms. A good example can be as we mentioned earlier, it is very difficult for some students to ask questions during online courses, hence due to their personal reasons, they might not be comfortable enough to ask their question over zoom or the platform-based technology in use, bringing down their engagement in a class. Along with that, during group presentations, many respondents believe that it was very difficult for them to interact with the group presenting during as well as before the presentation. Whereas, as a result of observing classes and lecturers through their computers, laptops and other digital devices, many respondents mentioned that their classes were just limited to the online reading of PowerPoint slides and believe that their level of engagement in classes was insufficient. Along with the physical attendance in the classes, if we look at the social aspect of students, many of the students who attended their courses during the pandemic did not know their classmates as meeting physically at the university was not in the picture and their communication and engagement in classes was nowhere close to the physical experience.

Student number 5 says: when asked about his engagement with his classes says that: "No engagement, because mentally I'm not prepared to attend the class , I'm just there to say I'm present. But if it was on campus, I had to wake up at least an hour before, wear formal outfit and then go on campus, sit behind the desk and listen to the professor physically". This clearly points out the decreased level of engagement as a result of distance learning technologies.

We asked student number 1, if his level of engagement in classes was sufficient he had to say: No, I really don’t think so. Because there was no real engaging & interactive parts like just.
It's a real problem when it's really just many lectures reading out the notes of that PowerPoint. We believe that this statement is very important for universities using distance learning technologies, where along with the use of these technologies, classes could be made more interactive for the student to engage in.

4.5.1 Peer to peer communication

In our analysis we observed that many of the students had to point out that their social interaction and engagement with their peers was at a complete standstill. The social aspect is considered a very important part for a healthy lifestyle of a student while studying at the university. But as we already discussed, physical classes were shifted to an online platform-based setting. Where, most of our respondent mentioned that during the lectures, students were not interested in turning on their camera, online a small number of students would keep their camera on. Now, this may be due to many reasons, as to some might feel shy, insecure, etc and may not turn on their camera. Hence, we can get a picture that the level of student engagement with each other in classes during their remote or distance learning experience. Let us now look at some responses if students felt the level of engagement was sufficient in classes:

Student number 8: “No, no one wants to put the camera on, and I feel like I want to put my camera on to respect my teacher, but I don't want to be the only one putting my camera on and everyone may be staring at me”

Student 10 says: “No, It was very from my side, at least here in Jonkoping. It was very little engagement. I think it was like a general, almost consensus in our class that the cameras were not. They were just all listening to the lecture. And however, when I was in Austria, it was different because. That they had person participation point, so I still must be like sitting up right. But, I have to have my camera on and I have to answer the questions in order to get the credits for the class. So then there was a big difference and I was participating a lot more”

Here from these statements, we can observe that students did not felt engaged in their classes during their distance learning experience but we believe that the technology can not be blamed and as student 9 mentioned in her statement that a strict attendance regime made her feel more engaged in her classes.

Student 9 says: “For me also it happened a few times that I was I didn't feel comfortable asking questions online somehow. I don't know it's, I think it's just a weird feeling. The whole
mechanism of raising your hand. And then, it's quite weird that my camera weird pop up on the big screen while I'm talking, and I don't know. It's kind quite intimidating, So, I felt like that was missing from my experience”

Most of the participants mentioned that virtual learning during the Covid-19 pandemic eliminated many of the fun aspects and limited students’ ability to collaborate. Additionally, having the chance to communicate face-face with other peers brings more learning experiences. Cooperation with classmates and exchanging knowledge happens when they meet each other often in person and allow them to build a friendship with their classmates. Communicating with peers in person especially when they do the group projects and exchanging data and feedback from each other right away had an effect on their learning experience.

*Student number 3: “It is better to meet personally because you can get the feedback at right away from peers and when you are online peers are lazy to read the work you did before and discuss it”*

*Student number 5: “learning wise I would say when you meet with someone in person, you will learn faster. You can adapt yourself faster”*

The only possibility that students could get to know each other during the locked down was breakout room when they had chance to discuss about the topic and learn from each other and come up with new ideas. Most of the students considered that breakout room was very beneficial for them and they could discuss, although still some of the students was silent but majority of students try to engage with the topic and bring their idea to the group. The role of teacher also was significant because teachers could pick the interesting topic for the students in order to engage them to discuss. Students was happy that they could meet new people during the time in breakout room and socialize online. Students were happy that multiple groups of students was able to interact for the task and accomplish communicative goals.

*“We had a teacher who used to have a lot of interactive discussions during the lectures and put us in a breakout rooms for like 5 minutes to discussing concepts and those breakout rooms were actually very beneficial because, every time I'm discussing with a new group of people”*
4.5.2 Student to teacher communication

In our many discussions with different students present all over Sweden, it was observed that one of the major areas where students were affected as a result of change in technology is their communication with their lecturers. During our interview we saw a theme in which whenever we discussed feedback, response and interaction in the class, students had a lot to add and were ready to put out their issues in a very clear-cut manner. Upon further analyses of the responses from various candidates, we observed that there was a general lack of communication between most students and their lecturers after the rise of the pandemic. Most of our respondents were not able to get sufficient or adequate feedback from their lecturers and teachers which they believe made their online learning experience and distance learning more difficult.

Student number 1: Studying European Studies at the University of Gothenburg says that “students now expect less feedback than they would have maybe in a physical classroom environment”.

Student number 4: “Well, I would say that the teachers were there to help, for sure. But of course, like for example, I would again give the example of that finance course like I would have preferred that teacher was using some white board in front of me and doing the solution and stuff while he was struggling to type in the answer and with all those signs, it was getting very difficult for him and eventually, I stopped asking the question and I was like, fine, I will just try to figure it out on my own.”

Here we can see that both the teacher and the student were willing to communicate with each other but due to the limited technology in use, it was made difficult. This gives us a major insight to how the learning experience of students have been affected as a result of digitalization. This lack of feedback can be due to many reasons and the lecturers or teachers can not be blamed for it. If we discuss a physical classroom setting verses and online one, we can say that it is a lot easier for a student to interact with their teacher as well as other students during a class. If he/she has any question or query, a simple hand raise can solve the problem where it gets the attention of the teacher and a response is made on the spot. Whereas, in an online setting, if the student has a question, they have to ‘virtually’ raise their hand, if the have the option in the technology in use, which is very likely to skip the attention of the teacher ultimately resulting in no or a very late response. It should be noted that students in this context did not blame the teachers but the blamed the usability and entire technological regime which
they had to go through as a result. Our respondents mentioned that their teachers were very willing to help but were not able to completely satisfy their students in a more interactive way as compared to physical classes.

*Student 9 says: Some teachers, especially the younger ones, were very good at using these sites and many of my teachers also did this. When they divided the screen and on one side it was the slides going and the other side it was where they took notes on there. So those were very nice. But some teachers didn't even know how to mute the person or how to kick out the person. So, there were some problems”.

Some students also mentioned that the teacher also need to adopt how to use distance learning technologies as from our responses we got the idea that although teachers are always willing to help their students in their class but may lack the skill or expertise to utilize the distance learning technologies. Along with understanding the skills to utilize distance learning technologies, an important point here to mention is that along with the shift in learning experience for students, the conventional teaching methods were also changed as a result of digitalization after the pandemic.

*Student number 4:* “I guess its more could have been done while designing the course, I'm saying, that maybe they were lacking some understanding of how to use this online platform, because I could see that when the students giving group presentations they would use different mediums and like for example kahoot and others down something the teachers were not using so they could have used many other things just to make the course with more interactive.”

Many of our respondents believe that as a result of decreased engagement in classes, the quality of their assignments & projects decreased which ultimately affected their overall scores. But some of our respondents also felt happy and satisfied with their level of engagement in a class. We believe that the level of engagement during lectures and classes is very significant and it depends on the teachers on how to design the courses in order to keep students engaged in classes and be more interactive as mentioned by one of our respondents above, lecturers could use already present various interactive tools in their classes for the students to feel more engaged in classes.

*Student number 2:* “when it is in person you could ask some questions from the lecturers to clarify right away, but when you have online doesn’t give you time to ask your questions and you say ok I can ask next time"
Student number 1: “I feel like I've learned more before the pandemic. The experience did not match the one that would be on a physical level.”

Student number 3: “I felt I was in a physical class because the group discussion and the sessions were so interactive and there was no difference among physical and Zoom classes. I was very happy.”

Taking a look at the participant’s responses, our findings show some important points to what has been discussed regarding the learning experience of students and their engagement during the class and group assignments. Most of them see the level of their engagement has a direct effect on their learning experiences and with more engagement and interaction in classes they believe they can learn more. Along with this, the technical issues and the way teachers try to engage with students has a big impact on student satisfaction. As we mentioned earlier, teachers try their best to provide a learning environment for their students but from our responses we observed that some teachers had troubles in doing so. The way teachers interact and engage with students in a course is very important and results in the motivation of students to participate more in classes and discussions. An increased effort along with technical training programs for teachers would bring up the level of satisfaction among students regarding their engagement in classes whether they attend classes in-person or virtually.

4.6 Effect on teamwork

Group work is something that has become an integral part of the academic requirement of many universities. This means that almost all students are required to work in groups in order to form team building and leadership skills for the future. In a pre-pandemic traditional setting, these meetings would usually occur by the physical presence of all group members. But as a result of the pandemic, most of our respondents feel that their group work and team building was major affected as a result of using distance learning technologies. We did not observe a one-sided response, some of our respondents experienced positives while other negatives in this context. Many believe that distance learning technologies have made students less accountable for their work. As students do not meet physically, they do not feel the pressure to face their peers and complete their work resulting in a lack of group performance. Whereas some believe that when met in person, ideas are discussed better where in an online setting, some might not even read questions before the discussion begins.
On the other hand, student number 3 says: "it was quite easy to communicate via zoom or online documents so it's more convenient because it is hard to leave your daily work and go and meet them in person, but I think it's quite simple to meet online." She believes that her communication with her peers was made fast and convenient giving her extra time for her daily work and believes that it is a matter of adoption. Which shows a picture where distance learning platforms affected some in a negative way, there can also be a significant positive side to it.

Student 9 says: “I always prefer in-person for group projects, we can listen to each other properly but when we do the group project online, some students doesn’t take it seriously and they do something else during the online meeting which it is not professional”

Virtual group work and meetings for students make it far more difficult to interact with each other and take more responsibility for their tasks. Students believed that the level of professionality decreased, and students less take it seriously. Most of the students when it comes to group work prefer to meet their peers in person and have a face-to-face meeting as they are able to express their ideas and take their responsibilities more seriously.

Student’s social networks and social health is one of the significant issues that most of the students pointed out during the interview and almost all of them was not happy that they lost their interaction with other students and their social networks. We could easily observe that isolation in social networks, lack of interaction and emotional support, and physical isolation was the most concern of students. Students also mentioned that Physical lectures could give them opportunity to study in the international environment and learnt from different cultures, but they could not experience.

“Physical study give us oppurtunity to interact with others and with online studying I couldn’t communicate with people. Except socializing i prefer hybrid learning”

The most of the student’s concern was the lack of interaction and socializing. The social relationships of students are likely to be impacted by the crisis in various ways. During crises, social support may be more important than ever. But at the same time, physical interactions are important in developing and nurturing social ties. As in-person interactions and gatherings are minimized due to social distancing, cause lots of stress and anxiety to the students that they are losing their social networks and skills.
Student number 8: “I had only one seminar in-person and in this seminar everybody was so happy because of the face to face interaction.”

From students feedback, there is no doubt that students prefer in-person meeting when it comes to group work and required brainstorming and discussion. Student feel in-person is more productive. Enjoyable interactions, friendships, emotional support, informational support, and co-studying have a big impact on students’ satisfaction in their final results. newly enrolled students who did not have the opportunity to create social relationships with others were a big issue and they mentioned if this is not achievable in person due to COVID-19 restrictions and if something like a pandemic happens in the future again, universities and teachers should think about the progress of online events and the use of online platforms to support the development of social connections between students.

Student number 7: “In-person meetings have been more productive always, so the group meetings that we had online were basically just to check up on things not rather discuss anything, it was just necessity to be there, not benefit”

The aim of this research is to find out the effects that students had to face as a result of new digitalized services offered as a result of the pandemic which completely changed the traditional and conventional methods of teachings to a more digitalized one. If we look at this in a deeper context, we observe that the conventional teaching methods where students have to come to the university on a daily basis, where most classes are mandatory, after the rise of the pandemic, situations arose which made it impossible for them to physically attend the university. Hence, for this purpose, their teachings and most of their university and educational communication moved to an online setting where platform-based technologies were provided for their learning and communication purposes. We will now discuss how students perceived these technologies and study methods as well as what effect did it have on their study routines.

Considering the respondent’s answers, the majority of students believed that if universities can customize a platform for their own students with advanced features can impact their learning. For instance, adding features that enable students to communicate better with each other and convert the same feeling when they meet in person.

Lecturers and teachers have developed strategies and tricks to get their message communicated to their students successfully over the years, but all of these teaching methods were put on a hold after the rise of the pandemic as the classes moved completely online. Although we
suggest that there should be initial training programs for teachers, when a new technology is introduced, we also believe that the student should be more patient until their teachers get completely familiarized with the digital technologies in use.

4.7 Summary of Findings:

To sum up the empirical findings we found that in the beginning of the pandemic students were not happy to change their learning from physical classes to online classes. They believe that physical classes were conducted in a more formal manner and believed that it resulted in a better outcome. Some of the students mentioned that getting dressed for classes and attending the classes physically felt professional compared to online classes which led students to concentrate less during the lectures. We believe that although some students prefer to be at lectures in person, since the initiation of their classes online, they were quick to adapt to the technologies provided and were able to maintain focus in classes but had problems in the beginning. Whereas some others had to add that they believe that the technologies brought forward as a result of digitalization after the pandemic has made their lives more convenient by studying online. They also believe that although in some cases it was hard to receive feedback from their teachers, many students believe that zoom and other distance learning platforms made their teachers readily available for them to have meetings and get answers to their questions.

From our findings we can sum up that the effect of digitalization on student learning experience was less interaction of students with each other as well as their teachers. Due to the lack of this interaction, brainstorming in classes which is an ideal for idea generation was at a standstill. We found that students believe that online lecturers make them have less interaction with their classmates resulting in no academic discussions. As a result, their groupworks are majorly affected as being less innovative. It must be noted that in the experience of some technical students who had to go to laboratories to learn, felt a great convenience when they had a mix of online and face-to-face classes. Students who experienced such conditions showed a positive response when asked about their communication with their peers and teachers where many of them had to mention that they believe a hybrid mix of classes is the way to go in the future.

In our analyses we were able to observe that many of the students had a vast degree of confusion at the early stages of the pandemic on how to deal with the introduction of digitalized platform-based technologies, but they started to see its benefits quickly. Many of them had to mention
that they were able to attend more classes as they would as compared to a physical setting simply because they could be a part of the classes from wherever they were present geographically. It also enables many students to fly back to their home countries and still be a part of the classes without being present at the university physically. Most of our participants enjoy studying through zoom and feel that it is more convenient and show low levels of stress. Respondents mentioned that they can use this extra time for self-study instead of spending time on logistics. Furthermore, they mentioned that after the pandemic, they were able to access more recorded lectures, as well as some of the online classes were recorded which helped them alot in their learning for exams and final grades.

A major thing to note in our analysis was that we observed that the teaching styles have also changed from a traditional classroom setting where teachers communicate with their students face-to-face to a more online setting where communication takes place through online platforms. We believe that this change will and has had a significant impact on the learning experiences of students in such a way where their communication is totally changed. Our respondents pointed out that the communication between them and their teachers is very significant, and it affects their learning and digital platform-based technologies brings forward its own positives and negatives in this regard. Most students believe that communicating with teachers during the classes has become more difficult, but some believe that meeting teachers online saves a lot of time for them and they can access a larger number of teachers in less time.

Now if we discuss the teamwork of students, our respondents showed very less satisfaction when asked about the effect of digitalization on their group work. Many of them had to mention that as a result of very less communication and in-person meetings, their peers did not show professionalism and were not serious about their academic work. Our research showed that the only time students were communicating during classrooms was when they were assigned into different breakout rooms on the platform-based class, it was the only time they incurred in brainstorming sessions with their peers. Although zoom and other platform-based technologies give students a chance to communicate online, it was observed that it has had a negative effect on their group work.
Chapter 5

5.1 Discussions

Our study goal is to obtain empirical evidence on what is the effect of digitalization on students’ learning experience. As stated in our problem formulation, prior research reading was not emphasized in students’ learning experience toward digitalization. Given the exploratory nature of this research, we believe that our findings are useful for addressing the gap within existing research, specifically aimed to contribute to the learning experience and digitalization literature and enhance the existing theory around the subject.

5.1.1 Theoretical implications

Our research’s focal theoretical value is an attempt to contribute and provide a more holistic understanding of what is the effect of digitization on the learning experience of students after the rise of the covid-19 pandemic. In line with this, adopting critical realism as our philosophical stance, we developed some categories that are derived from the interpretation of our empirical findings. Our study has developed several propositions on digitalization after the pandemic affected the learning experience.

In recent years, some research has been conducted on digitalization in the education industry but much research focuses on students’ learning experience from digitalization. Prior literature mentioned that in universities in order to enhance the learning experience, teachers must combine in-person learning together with digital learning and integrate the technology in a way that students engage during the online classes (Henry, 2008). Our finding also shows that the way teachers design the courses in order to engage them in the class has a big impact on students’ learning experience. Where in some technical courses, zoom was not sufficient for explaining the topic. Students mentioned that other digital technologies or platforms which are already available in the market could have been used by the teacher for a better understanding. We believe that the research’s findings contribute to the literature where universities should design courses in a way to engage the students in the lectures.

Our study and findings also revolve around the concept of ‘digital natives’ and ‘digital immigrants’ where the theory suggests that digital natives are people who have rather grown up with technology and technological innovations and it is not hard for them to adopt to
technology. In our case, all of our respondents were digital natives. Our study aims towards finding out the impact of digitalization after the pandemic on the learning experience of students, here most students can also be considered digital natives. While on the other hand, digital immigrants in our case are the teachers of the university who may not be completely familiarized with the usability of some technological innovations. As many of our respondents mentioned that their concentrations as well as their motivation was affected as a result of technical issues which the teacher had in commencing the classes. Our findings are completely inline with this phenomena where our respondents mentioned the need to train or educate teachers and lecturers on the usability of advanced digital technologies arisen after the pandemic. Further in the literature of Sedelmaier & Landes (2019), they mention that the new generation has different learning habits compared to the older generation of students.

Our research contributes to the literature of De Houwer, Barnes-Holmes & Moors (2013) that communication methods have been changing over time and our finding also shows that during the pandemic teachers and students shifted from their traditional face-to-face communication to a new digitalized platform-based communication where other applications such as emails, Microsoft Teams, Canvas, etc were used. Our study sheds light on how this communication has changed between students as well as between students and their teachers which has had an impact on their learning experience of students.

Our literature suggests that universities need to create an environment for the students in order to facilitate the learning based on their learning objectives and give them the opportunity to have an option to choose between hybrid or in-person learning (De Houwer, Barnes-Holmes & Moors, 2013). This is completely in line with our findings and a 100% of our respondents believe that universities should provide their students with the choice to attend classes in a hybrid manner having both, in-person and online classes.

Additionally, our study contributes to a greater understanding of technology which makes students accessible to a variety of knowledge, contents, resources, and materials which has an effect on their learning. Previous literature pointed out that knowledge becomes accessible and independent of time or place and students can have access to resources from all around the world and any time and there is no limitation in terms of place. Our results are in line with the fact that the learning process becomes more effective as they are supported by numerous digitalized technologies and at the same time education becomes available in more places (Sedelmaier & Landes, 2019).
Our literature suggests that communication has a big impact on student attitudes and flexibility and it is important for universities to provide customized services, making more people purchase the services (Pashkus, Bavina, & Egorova, 2020). We believe delivering various options to the students to choose between hybrid, in-person, and distance learning, make students have more options to choose how to enhance and experience their learning. More choices to choose between different learning styles results in more motivation to study which may enhance their learning experience in a university or higher educational institution.

Current literature shows that students felt lonely during the pandemic due to the shortage of interaction, mainly with their peers and teachers, and therefore modification of the teaching method to student’s needs is crucial (Toader, Safta, Titiriscă, & Firtescu, 2021). Our findings showed a very similar pattern where most of our respondents were not comfortable with the shift towards online classes and many of them had a stressful time and were not delighted with sitting at home and study remotely. But with the passage of time and ultimately towards the end of the pandemic, classes were altered according to the expectations of the students and teachers had to play a vital role in this regard. It was observed that courses had a high degree of customization and teacher involvement, where the teacher actively encourages his/her student to interact in class with the help of platform-based digital technologies. Hence, the learning experiences of students were heavily affected in the courses where they had very less interaction with their teachers and peers as a result of platform-based technologies.

5.1.2 Conclusions

In our research for the effect of digitalization on student learning experience after the rise of the pandemic, we would like to point out the fact that although the pandemic brought situations which resulted in the abruption of normal daily life, it also gave us a chance to explore new digitalized technologies. Distance learning and remote learning were just farfetched ideas for universities before the pandemic, as there was no demand for such digitalized technologies in the market present before the pandemic. In this research, where we look into the digitalization effects in a university, initially we dove into the concept of learning by understanding how is it created in the first place. The concept of digitalization plays an important role as a part of our thesis hence it was necessary to provide a detailed description of this concept which is provided in the chapter 2 of this study. Along with searching for interview respondents, our team conducted an extensive literature review looking into depth the concepts of distance learning & face-to-face learning which we believe has been changed with the rise of the covid-
19 pandemic. Our literature review shows that although distance learning technologies may not be widely used before the pandemic, it is not a new concept. It was our aim to point out the shift in digital technologies used in physical classes or the digital technology used to regulate the administration and workings of a university which ultimately had an effect on the learning experience of students. We believe that the pandemic gave us a change to identify new digital technologies and how these technologies can be utilized in the everyday workings of our higher educational institutions. If we talk about platform-based technologies, which in our case, Zoom is an application being the most widely used throughout university. We observe that there are many benefits of these platform-based technologies such as 1) provides the functions and tools for learning and educational contexts, 2) helps in the transition from physical classes to an online setting, 3) allows all participants to interact and communicate with each other, 4) saves time, 5) allows the student to attend classes from anywhere in the world, 6) in the case of injury or sickness, classes can still be attended. This kind of accessibility was not present before the pandemic and we believe that the covid-19 has helped us in identifying, as well as bringing forward platform-based distance learning technologies. Further in our study we explain the benefits of digitalization for students as well as the impact of digitalization on teachers present in a university. We were able to observe that digitalization can play a very important role in the students’ socializing, social health and personal development where with the help of digitalized technologies, communication is made better which helps a student in all those factors.

The chapter 3 of our study contains the details about our epistemological and ontological assumptions. It further explains our research philosophy and research paradigms. In this chapter we aim to explain the details of research design and what are the paradigms of conducting effective research. We would like to point out that for the purpose of our research, the inductive approach felt more relevant than the deductive approach. This chapter points out that our study is qualitative research where the sampling methods are explained extensively. Our sampling of respondents was keenly monitored to ensure quality in our results where only the respondents who experienced learning during covid-19 or students who experienced some kind of distance learning were chosen. We were keen towards having our respondents belonging to an age group of 20-35 to avoid any biases in results. Further in the chapter you can find the inclusion criteria for choosing our participants. Our data collection methods have been explained in detail in the chapter 3 of this study. Last this chapter hold the details on how we conducted the data analysis as well as details on what steps were taken to ensure research
quality throughout. The next chapter hold the details of our empirical findings and analysis where we explain and analyze the data attained from our respondents and summarize it within codes and themes and will be explained further in the discussions part of this study. Lastly, the chapter 6 of the study holds the limitations of this research, as well as recommendations for future researchers if they wish to further indulge in this topic of research.

Chapter 6

6.1 Limitations of the study

The aim of this chapter is to define certain limitations that resulted as a part of our study and discusses the areas of research which were not included as a part of our research.

Firstly, we would like to point out the time restriction due to the requirements of our master thesis. In that regard, we were limited in our data collection which affected the size of our interview sample, as well as the geographical focus on Sweden. Due to the limitation of time, we prioritized having interviews with at least one student in different fields such as technical and non-technical students in order to get sufficient answers for our research question. We believe that 2 students from each field of study would give us more solid results. Therefore, we could manage 10 interviews with students from different fields of study. The next limitation due to the time restriction was the geographical area which we could not extend in other countries. Therefore we focused only on students who are studying in Sweden but in different Swedish universities. As a result of time constraint, we could not include students present globally or situated outside of Sweden. Our research is limited only to students who are studying at the university in either bachelor’s or Master’s programs and we did not include students from the post-doctoral program. We believe that if we had more time we could add more respondents from different Phd programs as we believe that these type of students are more experienced and have a better grip on language and could have provided with more quality answers. Another limitation which we experienced was due to the covid-19 pandemic itself because of which we had to conduct our interviews virtually. There was only one interview that was conducted in person. This was due to the fact that most students were not present at the university and opted for taking the interview over zoom. Just as we mentioned in our findings, we observed minor communication issues and we personally believe that the quality of the interviews and communication could have been better in person. And We were
able to understand their verbal messages but the virtual element limited our ability to observe and analyse the body language and reactions from our respondents which we believe could help us in having a better understanding.

Another limitation may derive from the chosen research approach. As our study is a qualitative design and conducted in semi-structured interviews, the insights are instinctively designed by the respective interviewees, and their related experiences and perceptions, but also by how we, as the researchers, understood them. We regard their insights and thoughts as highly beneficial for our study, however, we cannot prove them accurately. Along with that, many of our respondents belonged to different countries and traveled to Sweden for the purpose of higher education. English was the mode of communication in our interviews but there were some instances in which the respondents could not answer in English due to their lack of skills in the language. Hence, for their ease, in some instances, they were allowed to answer a specific question in their native language which we later translated using the supportive translation tools.

6.2 Recommendations for future research

As mentioned earlier, it is the purpose of our study to add to the existing gap in the literature on the effect of digitization on the learning experiences of students, however this research also provides recommendations and opportunities for future research.

We believe that our study looks in detail the applications of distance learning (DL) technologies and what has been their effect on the student learning experiences as compared to face-to-face learning. We observed from our findings that a hybrid method of the delivery of classes is most preferred by students and we would like to recommend for future researchers that they could explore the effect of hybrid learning on the learning experiences of students and how it helps them in their learning and personal development.

Furthermore, as in our study we have approached the research from a qualitative perspective, we would like to recommend to future researchers that they could explore the same topic from a quantitative perspective. It would be really interesting to analyze and compare the results from both studies.
Now as we mentioned in our limitations that most of our respondents belonged to different countries but we could only choose interviewees belonging to Swedish universities due to time restraints, we would like to recommend for future researchers to choose a pool of students from a university situated outside Sweden. This will further help us in understanding what was the effect of digitalization on students’ learning experience present in different universities worldwide.

Similarly, we would like to suggest to the future researchers that as we had to follow the restrictions and conditions brought forward by the pandemic, most of our interviews were conducted virtually. We believe that the answers from respondents can be understood better by assessing their body language and other non-verbal cues if the interviews are done in-person. So we would like to suggest to future researchers to conduct their interview in-person if possible to have better quality results.
Chapter 7

7.1 Bibliography


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