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**The side-effects of the Pandemic: The Impacts on the University Students of Ulm
and Neu-Ulm.**

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Abstract

The deadly Covid-19 pandemic has affected so many segments of societies, and university students pursuing their higher education are one of those who have been affected by the pandemic severely. In Ulm and Neu-Ulm of Germany, the regular classes and academic sessions were suspended due to strict maintenance of social distancing rule and abide by the lock-down conditions entailed by respective authority. Therefore, how the pandemic has affected the academic career of the university students from Ulm and Neu-Ulm areas of Germany is required to be understood. Moreover, what roles the universities and the teachers have played to maintain students a smooth and sound academic career amid this pandemic is also required to be understood.

As such, the primary motive of this investigation was to evaluate the effects of the pandemic on the academic progression of the university students from Ulm and Neu-Ulm areas. In this regard, a sample of 100 individuals associated with these universities was used to conduct an online survey in order to understand the opinion of the stakeholders regarding the underlying topic. However, the results suggested that the sample was fully curated with current and ex-students of the university whereas no teacher or university admin staff appeared to participate in the survey. Therefore, analysing the views of these two stakeholder groups could not be possible.

Nevertheless, the primary survey data was analysed using descriptive statistical analysis techniques, which provided a clear view of the students that the pandemic had effectively adverse impacts on their academic and future profession lives. It was also revealed that many universities from the underlying areas, along with their teaching staff, came forward and play a crucial role to help students adopt with the changing paradigms and thrive through these changes. In line with this, the faculties have been empathetic, supportive and actively concerned, while the university administrative offices need to be more focused in serving students prudently and efficiently.

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Chapter One: Introduction

1.1 Context of the study

The COVID-19 pandemic has had extensive consequences on many different areas of society, including the realm of higher education. The COVID-19 pandemic has had a substantial impact on universities worldwide, including those situated in Germany, which has resulted in the need for expeditious modifications to pedagogical and learning approaches. In order to fully grasp the scope of these consequences, it is imperative to examine the detrimental impacts encountered by university students and evaluate their implications for their academic, psychological, and social welfare. The COVID-19 pandemic necessitated a rapid shift from conventional in-person instruction to virtual and distance learning modalities. The cessation of on-campus amenities, including libraries, laboratories, and study areas, has had a significant impact on students' resource accessibility and the general educational milieu Bashir et al. (2021). On the other hand, Asgari et al. (2021) have identified that, university students are facing considerable challenges in adapting to the new mode of instruction due to restricted availability of reliable internet connections, inadequate study environments, and insufficient familiarity with online platforms. As a result, learners have encountered difficulties in terms of their involvement, drive, and dynamic involvement in their scholarly endeavours.

In addition to the fact that it has made it difficult for them to pursue their academic goals, the epidemic has also had severe psychological repercussions for university students. According to Yoo et al. (2014), the rapid transition to online education and the accompanying installation of security measures have resulted in an increase in the prevalence of stress, anxiety, and depression among students. Kovacs et al. (2021) mentioned that the worsening of emotions of loneliness and isolation could be ascribed to a loss of social ties and a reduction in face-to-face contacts with peers and instructors. The mental health of students has been seen to decrease because of several causes including uncertainty about the future, worries over health and safety, and the emotional effect of the pandemic.

The onset of the pandemic has had a profound influence on the social experiences and networks of students enrolled in higher education, which has resulted in a breakdown of the social fabric that underpins the culture of university life. Idris et al. (2021) delineated that the lack of options for face-to-face social contacts has caused issues for students in terms of maintaining social connections, participating in extracurricular activities, and creating new relationships. The research conducted by Burns et al. (2020) identified that one of the obstacles that stands in the way of students' capacity to participate fully in university life is the limited availability of campus facilities. These amenities include student organisations, clubs, and activities. Because social support and networks are so important to the academic success and personal development of students, any disruptions to these social structures may have substantial ramifications for the students' overall wellbeing.

According to Tomlinson et al. (2022), the economic distress caused by the pandemic has also led the university students into financial troubles, which hampered their smooth academic career during the lockdowns, owing to surging unemployment, less work hours and instable financial conditions. A significant portion of today's students relies on income from part-time jobs to support their educational endeavours and fulfil their day-to-day financial responsibilities. The COVID-19 epidemic has led to a drop in career prospects, which has increased the financial issues that students confront and contribute to their psychological suffering. Students who struggle financially may have a harder time obtaining essential resources, which may worsen existing mental health issues and slow their academic progress. The present study aims to examine the repercussions of the pandemic and discern the most prominent effects it has had on German university students. Specifically, this investigation centres on identifying the impact of COVID-19 on higher education institutions and exploring the measures implemented by universities to safeguard the mental well-being of students and maintain uninterrupted academic progress.

1.2 Rationale of the study

The proposed study pertains to the adverse consequences of the pandemic and its impact on university students in Germany, with a specific emphasis on Ulm and Neu-Ulm. Rasiah et al. (2020) mentioned that educational institutions can enhance their support mechanisms and foster more comprehensive and efficient learning environments by tackling the distinct challenges faced by students, including obstacles related to online learning, resource accessibility, and decreased engagement. Moreover, the findings of the study also offer significant improvement in the current understanding about the pandemic and its effects on higher education. Many investigations had been conducted on this topic and they provided critical understanding about how university students can be affected from such deadly situation. Narrowing down the scope of analysis to particular universities of a certain area, such as Ulm and Neu-Ulm, can yield geographically specific perspectives and augment the contextual determinants that impact the adverse outcomes encountered by students. Acquiring context-specific knowledge is imperative in tailoring interventions and policies to tackle effectively the distinctive needs and challenges faced by students in these particular regions.

Further, Dominic et al. (2021) focused on critical dimensions of crisis management, and how effectively individuals and societies can be prepared for any natural hazards of epidemic, and suggested effective recommendations for policymakers and academics. Furthermore, the investigation into the repercussions of pandemics has the potential to provide valuable insights for forthcoming policy determinations and emergency management approaches within the realm of higher education. The COVID-19 outbreak has brought to the forefront the weaknesses and inadequacies of current educational systems, underscoring the necessity for pre-emptive actions and backup strategies. This can be achieved through an analysis of the pandemic's academic, psychological, social, and financial impacts through this study.

1.3 Research aim and objectives

The study aims to evaluate the adverse effects of the Covid-19 pandemic on the academic progression of the university students in Ulm and Neu-Ulm areas.

The specific objectives of the study that helps to achieve the research aim are furnished as follows:

- To evaluate the effects that the widespread Covid-19 epidemic has had on higher education among university students in Germany, with a particular emphasis on Ulm and Neu-Ulm.
- To investigate the procedures that universities in Ulm and Neu-Ulm put into place to ensure the mental well-being of their students and to prevent any disruptions in their study while the Covid-19 epidemic was ongoing.
- To explore the several forms of assistance that are made available to students at the universities in Ulm and Neu-Ulm in order to assist them in overcoming the detrimental effects that the Covid-19 epidemic has had on their social lives.

1.4 Research questions

The present study will seek answer to the following main question:

What are the side effects or impacts of the Covid-19 pandemic for students of universities in Ulm & Neu-Ulm?

The main question is broken down into three sub-questions that are:

- What are the impacts of Covid-19 on the higher education of university students in Germany?
- What are the measures taken by universities to maintain the mental health and uninterrupted education of students?
- Which type of support is provided by universities to enable students to overcome the negative impacts of Covid-19 on their social life?

1.5 Methods of Research

The study will follow a quantitative research technique to achieve the specific research objectives. In this regard, a survey using an online questionnaire will be conducted to collect data from primary sources, which will cover necessary insights about the students enrolled in universities in Ulm and Neu-Ulm area amid the pandemic. According to McCusker & Gunaydin (2015), the utilisation of a quantitative methodology enables the collection of numerical data, which can be subjected to statistical analysis to discern patterns, trends, and correlations among variables. A methodical survey instrument will be formulated and disseminated via digital means for a demographically representative subset, which are the university students located in Ulm and Neu-Ulm. In the survey, required information regarding university students' academic progression, their physical, mental, social and economic conditions, and supports extended by their universities and teachers have been covered. The utilisation of quantitative methodology will facilitate the derivation of insights based on empirical data and statistical evidence, which will effectively address the research objectives and make a valuable contribution to the current body of literature pertaining to the subject matter.

1.6 Outline of the dissertation

The research paper will be concluded through the utilisation of six chapters. The introductory chapter will function as the report's opening section, providing an overview of the research's background and highlighting its aims, objectives, and questions. Furthermore, the rationale for carrying out the study will be presented. Chapter 2 will comprise a literature review of the established and published theoretical framework. The proposed methodology aims to formulate a comprehensive strategy for executing the research, delineating each individual technique. The forthcoming chapter on results and analysis shall encompass the data gathered and explicate its significance. The next chapter will comprise a comprehensive analysis of the research's outcomes and an in-depth overview, accompanied by recommendations.

Chapter Two: Literature Review

2.1 Inclusion and Exclusion Criteria for the Systematic Literature Review (SLR)

Criteria	Rationale
Countries	The papers that have been selected focused on Germany as per the study area focus.
Year	To get the understanding on the pandemic and the current situation, papers that are published in 2020 and later have been selected here.
Sector	As the study is focused on the education sector, only this focus area has been used for filtering the papers.
Peer-review	In this study, only peer-reviewed papers have been selected for analysis.
Sources	The papers have been collected from authentic sources like Research Gate, Science Direct, Google Scholar, etc.

Table 1: Inclusion and Exclusion Criteria for SLR

The articles for the systematic literature review (SLR) have been selected based on the above-mentioned criteria. At first, based on the keywords of the research area, total 150 articles were selected from different sources like Google Scholar, Research Gate, Science Direct, etc. After that, 30 articles were filtered out by reading the abstract. A total 30 articles were then filtered out based on the country and year focus as mentioned in the inclusion, exclusion criteria. The based on the peer-review and sector focus criteria, a total 60 articles were finalised. The objectives and findings of the selected papers made the researcher to filter out 25 articles. Finally, 15 articles were selected for the systematic literature review.

2.2 Article Selection Process

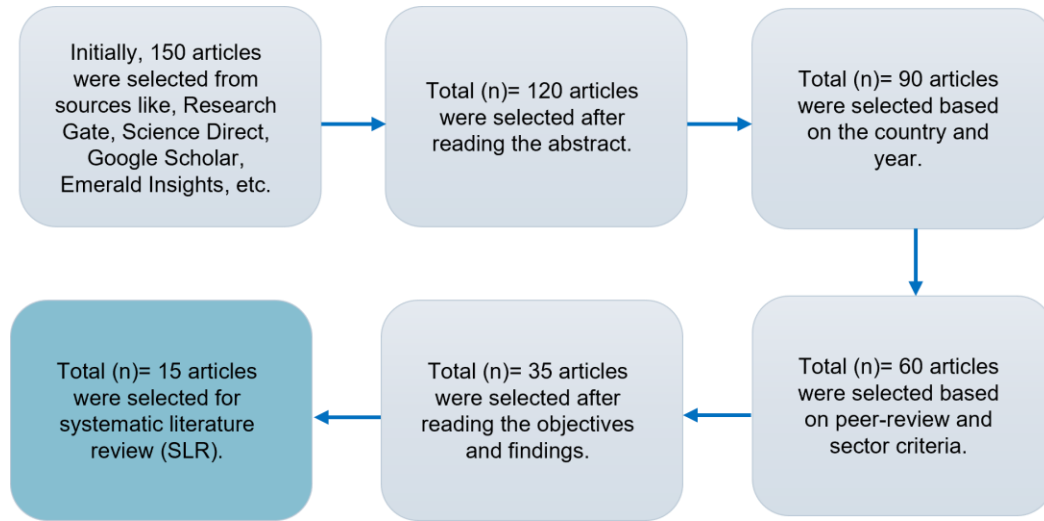


Figure 1: Articles Selection Process

2.3 Introduction

During the pandemic, the regular educational system was disrupted since it was impossible to continue physical and in-class education. Therefore, educational institutions were forced to shift their whole process of teaching to the digital platform, and online education started with full force. From classes to exams, everything was done through digital means. However, the sudden shift to digital education also had many side effects. In this section, a critical review of different pieces of literature is done to explore the side effects of the pandemic in the German educational sector. The systematic review of the literature would enlighten the understanding of the impacts on the educational sector of Germany and the factors associated with it.

2.4 The negative impacts of Covid-19 on the higher education of university students in Germany.

Due to the wide spread of the Covid-19 virus, several nations have adopted a new way of life that emphasises personal space and electronic communication. In the study by Zawachi-Richter (2022), the findings are focused on examining how the Covid-19 epidemic has affected education in German universities. The article investigates whether or if the implementation of Emergency Remote Teaching in the online term 2020 will hasten the digitalisation of education and learning and what may be developed during this evolution. The authors have analysed in this case study that the preference for in-person classes is stronger among those who have never completed an online program. The opposite is true for students who have never completed an online class, are much more likely to choose hybrid settings, and are considerably less likely to prefer strictly face-to-face classes. However, the authors have also put some arguments too. According to their findings, many educators have gone to considerable lengths to make it feasible for most students to study by digitising their courses and seminars. Nothing about all of this should be wasted. When things return to normal, many professors plan to keep using the new resources they have created. There has been a lot of investment in the technological infrastructure in a short period. Many university officials have come to see that centres of competence for digital teaching may be relevant to the institution and need to be better prepared.

In another study by Plakhotnik et al. (2021), the perceived impact of the pandemic and the overall support given by the educational institutions that are being considered on the well-being of the students were analysed. According to the authors, the sudden and unexpected shift to online teaching and learning brought about by COVID-19 is likely to have affected many, if not all, facets of the life of university students throughout the globe. This finding demonstrates the significance of campus resources in shaping students' perspectives and emotional states, such as stress, meaning creation, and life satisfaction. The backing of the university is an extra-personal resource. Students can manage the challenges of their studies when they are given timely and sufficient assistance.

Nevertheless, the study also claimed that students perceive that their universities and teachers are less likely to be very helpful during the pandemic, and they have fewer chances to complete their programmes amid the pandemic due to its adverse effects, which includes financial instability. The authors have provided an explanation for this occurrence using the various viewpoints as a solid foundation. While both students and institutions value well-being, they prioritise different things. Students see supports from the university as helpful and efficient when they get prompt responses to their emails from professors, open and rapid communication about the changes brought on by the COVID-19 scenario, engaging and accessible online instruction, and access to emergency funds. It has also been argued that universities are under increasing pressure to improve the quality and quantity of resources they provide to help students succeed academically. Universities are responsible for providing solutions consistent with institutional or government criteria, but specific data is lacking to guide their efforts.

Further, the study by Breitenbach (2021) has focused on how the pandemic has changed Germany's educational sector's dynamism. As it has been found in the study that the colleges were compelled to make a drastic change by moving away from traditional classroom approaches and toward digital ones. The research investigated the effects of digital pedagogical strategies, including their advantages and disadvantages, on the emotional well-being of both students and educators, in the context of the recent global pandemic. According to the findings, students' socio-demographic features substantially and favourably affect their perspectives on the online learning environment. Despite the numerous benefits of digital and remote school environments, students felt that the government-mandated seclusion contributed to their unhappiness.

According to Hörtnagl-Pozzo et al. (2021), the pandemic has impacted the tourism-study sector in Germany. The authors conducted a survey for getting further insights. This survey analysis suggests that the pandemic has negatively impacted tourist education by making it impossible to have regular in-person lessons or social gatherings. The study further indicates to unanimous opinion of the students and teachers of German universities that the Covid-19 pandemic had affected the regular flow of the academic programmes, both parties had been affected from the pandemic while lockdown was underway in Germany.

The research has found that even though this sector was able to keep the regular flow of education in the process, practical learning has been greatly hampered.

The education during the pandemic was primarily distance learning which impacted the students' mental health. As was found in the study by Weiss et al. (2022), students' lack of interaction with and feedback from faculty and peers significantly impacts their mental health in the distance education setting. Several studies have shown that students who collaborate with their classmates do better academically and are more engaged in class. However, the authors also believe that the increased frequency of anxiety and depression among medical students is partly attributable to the stringent measures taken to avoid the transmission of the novel coronavirus infection, which restricted direct social interaction. Anxiety and sadness were also shown to be predictors of academic performance satisfaction among medical school students.

2.5 The measures are taken by universities to maintain students' mental health and uninterrupted education.

Educational institutions are not only liable for teaching the students according to the academic outline. It is also important to look after the mental health of the students. In various studies, it was found that compared to the general period, the students were suffering more from mental health-related issues. According to Besa et al. (2021), a second survey was administered later when the pupils could manage the digital learning approach more effectively after first surveying students during the pandemic's early stages.

Students reported fewer migratory experiences and fewer chronic conditions one year after the first trial. However, the paper also argued that many people said they had mental health problems due to isolation from their usual social circles. The findings of the study indicate that students need to be familiarised with the newer techniques and processes of e-learning which appeared very important and necessary to continue the academic programmes amid the pandemic.

Apart from the concerns of the students, it is also important to gather insights into the attitudes of the faculty members regarding digital education. Because it was in their hands mostly how they were going to maintain the situation and make the students be prepared and adapt to the sudden change in education, especially when the teaching is majorly focused on practical learning. In the study by Noid et al. (2021), the analysis was done on the faculty member's perspective on the teaching area of dental students and universities in Germany during the pandemic. The data from the study provides a clear picture of how dentistry education in universities has evolved since the epidemic. Most polled professors in the survey of the study want to keep teaching online after the epidemic, confirming earlier research findings. Due to the importance of hands-on experience in dentistry, it is not a subject well-suited to being taught only via online means. Although it has also been critically analysed that the research participants provided far more digital teaching during the epidemic and have shifted their attitude dramatically towards online education, the effectiveness of analogue teaching is ranked best in student learning. According to the authors, there is a lot of extra effort for the lecturers to convert their lectures into digital files. The majority of professors at German universities are optimistic about the future of digital education and look forward to the day when they can provide the majority of their courses online.

The educational sector of Germany has also used different methods of study during the pandemic. From the review of the paper by Babbar and Gupta (2022), the unforeseen crisis in the education sector has been met with a variety of remedies from various nations, each bringing its own set of benefits and downsides. The authors have found that most developed and developing nations have successfully adapted and transitioned to digital teaching. In contrast, lower developing countries have had a harder time doing so. Making online education available to economically disadvantaged students is a pressing issue that has only emphasised the growing need for public-private collaborations to tackle this issue.

Further, the study has also gained insights regarding the fact that some African countries' governments and educational institutions have partnered with telecommunications firms to make high-speed Internet access for students cheap.

As a result, the quality of material delivery and learning results have suffered, even though the education industry has been eager to adopt digital teaching-learning systems. According to the authors, the education sector's rigidity significantly hampered the acceptance and success of digital pedagogy.

Reflections on using online resources for instruction and education in the midst of the Covid-19 epidemic have also been a matter of discussion in the area of changes in the German education sector. Several studies have been done since the beginning of the Covid-19 epidemic to assess the efficacy of digital educational experiences, digital learning materials, and online educational platforms, as well as their applicability and acceptance among the receivers. According to the findings from the study by Reisach et al. (2022), it makes no difference whether the instruction is transmitted digitally or analogously in terms of the challenges involved in proving its efficacy. Teachers' commitment to providing high-quality lessons and students' readiness to engage with those lessons actively are crucial. The increased social engagement made possible by mutual collaboration helps alleviate sadness and worry about professional and social prospects, as found in the results of the study. The study found that the educational institutions put in significant effort to ensure that the digital learning initiatives ran smoothly and in accordance with the academic calendars.

Various reactions by universities to digital learning and seismic shifts have also been detected in the German educational sector. Bensaïd and Brahimi (2021) found the Covid-19 pandemic as one of the critical barriers for educational development of a nation while the regular curriculum of educational academies get hampered and hindered severely. Schools have stepped up to the plate to overcome this obstacle, providing students with a safe and well-planned learning space despite the epidemic. The researchers content analysed a range of contemporary papers published on the topic and found that the Covid-19 pandemic critically effects on students' mental health, which, in turn, affects their overall growth, in terms of mental soundness and academic progression. According to the research results, the sample universities responded to the challenge of the pandemic by creating digital learning systems and incorporating them into their pedagogical practises. While doing so, universities reflected on their responsibilities to ensure student safety and well-being.

2.6 The tactics used by universities to confront students about the negative impacts of Covid-19 on their social life.

Besides all the impacts that the German educational sector has gone through, the universities have also been known for using different tactics so that the students could reduce the negative impacts on their social lives, which has most impacted their mental health and the regular way of living. The analysis regarding the experiences of distance learning was a major area to explore that has been done by Reisach and van Kempen (2021). The study's primary objective was to get a thorough familiarity with the digital pedagogical strategies used by college professors during the quarantine period brought on by the epidemic. The authors have also aimed to outline whether or not the instructors felt at ease with different methods of instruction. Analysis of survey responses and interviewee comments provide light on how respondents felt about the usefulness and acceptance of digital pedagogical approaches among students. According to the results, digital pedagogical methods were enthusiastically embraced by faculty members, who said that they had benefited professionally from them. They used their free time to conduct independent studies and share their findings through public forums. Aside from the benefits to teachers, using digital tools in the classroom was well-received by students, who appreciated the extra free time they gained to pursue personal interests. The institutions' efforts to improve the academic learning processes during the pandemic and to mitigate the obstacles of students being unhappy or disillusioned due to non-mobility during the shutdown or social isolation condition allowed for the introduction of digital tools.

University staff and student perspectives on the impact of the Covid-19 epidemic on campus life, academics, and institutional responses to the crisis have been a major area of consideration for the analysis. According to Filho et al. (2021), most respondents said that the shutdown negatively impacted their workload, producing more of it, and confirmed that the shutdown disturbed their daily routines, particularly with the capacity to interact with colleagues and the need to rearrange work and meetings. This research confirms the findings of prior studies highlighting the negative effects the three-month closure of higher education had on the mental health of a significant section of the academic staff and students.

The authors have also mentioned that the staff and students alike struggled with a lack of social contact, motivation, and mental health issues, including boredom, loneliness, and anxiety due to the abruptly enforced social isolation. The current findings of the study among religious faculty and students reveal a trend toward more favourable assessments of social isolation. Faculty and students reacted to the lockdowns in very different ways. While most students abandoned their assignments immediately after the lockdowns, faculty members mostly kept on working. In addition, faculty members reported being more pleased than students with the resources and infrastructure made available to them in the wake of the epidemic. One possible explanation is that students were unprepared for online education because of issues like "digital poverty" and "digital gap," characterising students' relative and absolute access to IT equipment and the internet, respectively.

Moreover, strategies for dealing with the psychological effects of the Covid-19 pandemic quarantine on college students are a factor to be considered during the pandemic, which has been analysed in the study by Almomani et al. (2021). This research found that female students reported higher psychological symptoms than male students had and that these students coped with stress through activities including sleeping, studying, and attending religious services. As the male students studied, worked out, and played video games. Moreover, more drastic effects were observed among the older students comparing to that seen among the younger students. It was observed that the Covid-19 pandemic caused weakened mental states among the older students, while the younger students faced sadness and distresses only which they fought by napping or playing video games. The authors have discovered that among young people, women showed greater signs of discomfort than males. As a group, the authors have also talked about how the kids' psychological symptoms and methods of dealing with them changed throughout the quarantine course based on their ages.

The stress levels and coping mechanisms of persons of varying ages (18-99) were significantly varied. To deal with stress, young individuals rely more on problem-solving techniques than their elders. In another research on age and stress management, participants were college students (aged 18-29). They discovered that older students were likelier to use coping strategies, including problem-solving and cognitive restructuring. The results verified the findings.

In addition, the specific effects of the Covid-19 epidemic on the academic performance, social integration, and psychological well-being of undergraduates, as well as the university's response, are discussed in the study by Prowse et al. (2021). Many people have had to deal with a difficult position because of the COVID-19 epidemic and the societal constraints that came with it. However, it is now obvious that the epidemic has not had the same impact on every country. The present pandemic conditions have been especially hard on young and emerging adults, who are one of many disproportionately afflicted demographics. As it is, the years between childhood and adulthood are fraught with uncertainty and upheaval as young adults navigate significant shifts in their academic and professional pursuits and social and romantic relationships. Besides, the transition into maturity correlates with enrolment in an institution of higher learning. There is a significant lack of data on how the ever-changing COVID-19 epidemic has affected college and university students. However, the stress of the pandemic might further worsen these problems if this population is already experiencing a multitude of stress and mental health challenges. In light of this, the present research examined how the COVID-19 epidemic affected the academic performance, social interactions, feelings of isolation, and psychological well-being of university students.

2.7 Conclusion

Since it was difficult to maintain normal classroom instruction due to the epidemic, the usual educational system was interrupted. As a result, universities and other educational institutions were compelled to completely adapt to the digital environment, ushering in the advent of online learning. Everything, from lectures to finals, was conducted online to bring the normality. Although many positive outcomes resulted from the swift transition to digital instruction, there were also numerous negative consequences. This chapter provides a comprehensive review of the key literature relating to the effects of the Covid-19 pandemic on university students' academic progressions in Germany. An in-depth analysis of the relevant literature would provide insight into the causes and effects now affecting the German schooling or education system.

Chapter Three: Methods

3.1 Introduction of Methods

The methodology chapter helps researchers to make valid and related decisions to gather suitable and applicable research information by representing which method, philosophy, and approach will be the most appropriate to complete the study (Caraiani et al., 2018). From the beginning of this study, the methodology section will act as a guide until the end to generate reliable and quality research work. In order to develop this methodology section, Saunders' research onion will be used.

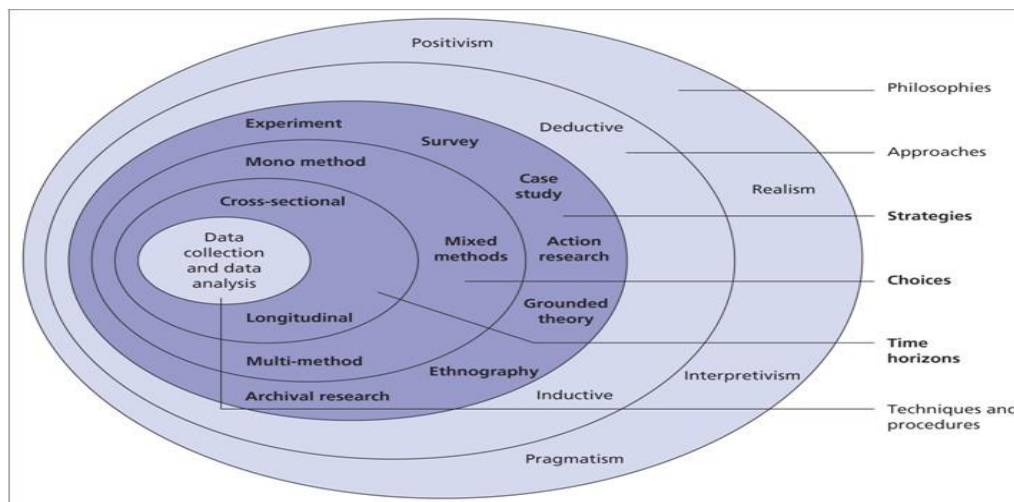


Figure 2: Research Onion (Saunders et al., 2019)

3.2 Research philosophy

Realism, pragmatism, positivism, and Interpretivism are the most common and accepted philosophies that are deliberately applied by researchers to generate quality research work (Fischer et al., 2023). Positivism has been chosen as the philosophy of the study since it will help construct the quantitative basis for conducting the whole study regarding the effects of the Covid-19 pandemic on the academic progressions of the university students from Ulm and Neu-Ulm areas of Germany.

This philosophy helps in gathering the most objective and unbiased research data for the study (Grossoehme, 2014). This philosophy lets the researchers become accountable and a vigorous portion of the research contribute to the evaluation of the behaviours', attitudes, and actions of the individuals about any specific aspect related to the study area (Rana et al., 2021). This philosophy support and follows the application of quantitative methods by using reliable and standard frameworks that makes the philosophy more reliable and acceptable.

The positivism philosophy allows a study to generate appropriate and standard research work by meeting all the necessary research requirements (Hyett et al., 2014). This philosophy also helps a study to generate the most valid outcome for research by examining the most potential expressions, attitudes, and feelings of the selected group regarding any aspect related to the field of the study which is close to the actual event (Noble and Smith, 2015). The other philosophies including pragmatism, interpretivism, and realism have not been followed by the study, as these are unable to develop the most desirable outcome that positivism philosophy can conduct. In the case of interpretivism philosophy, there is a great chance of gathering unbiased and counterfeit information for the study. Also, the other philosophies will be not suitable to develop the desired outcome by meeting all the necessities of this study.

3.3 Research approach

Inductive and deductive are significant research approaches that are accepted and used by researchers for years to develop reliable and valid research work (Chigbu, 2019). Among the two significant research approaches, the deductive reasoning approach has been identified and followed by this study and this enabled this study to investigate the significant impacts of Covid-19 on the higher education of university students in Germany. This approach emphasises the particular investigation of any phenomenon or matters to identify the vital impacts of the research variables on each other as well as identify the significant relationship among the research variables (Fischer et al., 2023). Deductive reasoning helps a study explore the significant areas of the study as well as identify and gather the required information for evaluation and develop a reliable and suitable research outcome (Mohajan, 2020).

The deductive reasoning approach supports the application of quantitative methods in data analysis as well as follows the numerical methods in developing the research outcome (Noble and Smith, 2015). This approach helps a study reach the origin of the study area and gather the most appropriate and authentic research information for evaluation and application in the study, therefore, it helps in generating a reliable and valid research outcome of a study (Hyett et al., 2014). The inductive reasoning approach has not been followed or applied by the study, as it supports the application of the qualitative rather than quantitative method of gathering information and utilisation. In addition, inductive reasoning can generate stories with limitations that can impact the study's reliability (Ahmad et al., 2019). Therefore, applying the deductive approach in this study is considered the best choice.

3.4 Research strategy

There are varying research strategies available including action research, experiment, ethnography, archival research, survey, case study, archival research, and action research, these are widely applied to accomplish research studies (Rana et al., 2021). To complete this study, a survey strategy has been identified and selected to apply with a 100 samples size and this strategy will help this study to gather in-depth and valid research information about the side-effects or impacts of the Covid-19 pandemic for students of universities in Ulm & Neu-Ulm. The information gathered from the survey strategy is the most updated which helps to develop a study with concurrent information that make the study more acceptable and reliable for the readers (Terrell, 2015). The survey method helps to convert and represent the qualitative data into quantitative values, which helps the readers easily understand the findings of the study (Grossoehme, 2014).

There are different suitable methods or ways through which data can be gathered when a survey strategy is applied including telephone, e-mail, personal interview, and online (Saunders et al., 2019). To collect suitable data through a survey strategy the online questionnaire method has been used where some valid and related questions have been developed. The other research strategies have been avoided by the study because the survey strategy is able to give the best outcome and meet all the requirements of the study, which the other strategy will be unable to meet.

Also, to grab the best answers for the questions developed for the study the survey strategy can help to gather the most recent and reliable information (Mohajan, 2020). Therefore, the survey strategy is the best choice.

3.5 Research method of choice

Quantitative and qualitative are the two significant research methods that are widely applied in research to generate the best outcome (Fischer et al., 2023). But this study will follow the quantitative method in generating the study outcome because it will help to identify the crucial impacts of Covid-19 on the higher education of university students in Germany. The quantitative method enables a researcher to acquire, examine, and utilise the information from authentic and reliable data sources to develop a finding by using numerical or statistical methods and frameworks (Wasim, 2019). This method helps studies by providing a specific understanding of the acquired data regarding the area of the study (Terrell, 2015). The quantitative method also ensures the accuracy of the research work because it works with a selected sample size, which is able to generate good quality and reliable research information (Noble and Smith, 2015).

The quantitative method can identify the significant changes in behaviours and actions of a targeted group(s) to analyse and generate the most suitable answers to the research questions (Saunders et al., 2019). The quantitative method is a flexible one that is also able to generate easy-to-understand research outcomes so that people with fewer ideas about theories can easily realise and accept the study. The other research method, the qualitative method, has not been selected by the study because it has various limitations such as lack of reliability, difficulty of identify reliable sources, getting biased information, manipulation, lack of updated data, and so on (Fischer et al., 2023).

3.6 Research time horizon

The widely applied time horizons are cross-sectional and the other is longitudinal, but cross-sectional has been recognised to apply to complete the research. This time horizon will help to accomplish all the steps and procedures of the study including gathering information, analysing, representing, and concluding, and so on within the shortest time. The cross-sectional helps to complete the research within the required or given period by meeting all the study requirements (Hyett et al., 2014). The longitudinal time horizon has been skipped to use by the study because it takes a much longer time to collect the study data as well as complete the study (Rana et al., 2021).

3.7 Research techniques and procedure

3.7.1 Data collection method

This research will apply the primary data collection method to collect the data for research through a survey strategy regarding the side effects or impacts of the Covid-19 pandemic for students of universities in Ulm & Neu-Ulm. This method allows for gathering updated and recent data for the study from the most valid sources to generate an easily understandable research outcome (Terrell, 2015). This method is considered the fastest and easiest one, which possesses the lowest possibility to get counterfeit research information (Grossoehme, 2014).

As updated information can be gathered through the primary data collection method, the study outcome becomes concurrent and acceptable to the readers (Noble and Smith, 2015). The authenticity of the information and the specific existence of the primary data collection method helps a study gather unbiased and authentic information (Mohajan, 2020). There is a great chance of gathering invalid and biased information if the secondary data collection method is applied. Therefore, the primary data collection method is the best choice for this study to apply.

3.7.2 Data analysis method

Inferential, perspective, inferential, and diagnostic are the four significant and widely applied data analysis methods those help in generating the most desirable outcome (Fischer et al., 2023). This study has selected both the descriptive and inferential methods for the analysis of the research information also the study will apply multiple linear regression which will enable the study to depict the study outcome accordingly. The descriptive data-analysis method will help the study apply statistical frameworks to gather, evaluate, and depict study output (Caraiani et al., 2018). Conversely, the inferential method helps a study to develop an in-depth understanding of the research outcome by describing and discussing the information gathered (Hyett et al., 2014).

The descriptive method will allow the study to generate a broader picture regarding the study area by evaluating the gathered information as well as generating a conclusive study outcome (Grossoehme, 2014). The inferential analysis method enables a study to develop suitable predictions based on the gathered information and the analysis (Chigbu, 2019). The application of both the descriptive and inferential will help the study to utilise the benefits of both methods' advantages, therefore, generating a more reliable and quality study outcome. The other data analysis methods are skipped to use by the study because they are unable to meet the study objectives and generate suitable answers for the research questions.

3.8 Ethical consideration

The ethical considerations of a study depict the standard rules or procedures that a study needs to follow to ensure the validity and authenticity of the whole study (Caraiani et al., 2018). This study has followed all the required ethical issues. Proper permissions have been taken from the participants or respondents from whom the study information will be gathered through a survey questionnaire. In addition, proper citations have been provided to ensure the authenticity of the study.

Permission has been taken from the authors of different writings when required and references have been given accordingly. Any information that can adversely affect the readers has been strictly avoided also any information that can harm anyone somehow has also been avoided to apply in the study. The most stable and standard frameworks have been selected and applied by the study to ensure quality outcomes.

3.9 Conclusion

This methodology chapter has depicted which methods have been selected to apply in the study as well as which method has been avoided to apply in the study with relevant justifications. This methodology section helped the study by providing a suitable framework following which the whole study has developed. Therefore, all the methods selected for the study will help to generate the most valid and reliable study outcome, which will be acceptable to the readers.

Chapter Four: Findings and Discussion

4.1 Demographic analysis

Demographic analysis provides idea about the basic characteristics of any research sample. In the current study, a survey was conducted among the research sample of 100 individuals who are connected with universities in Ulm and Neu-Ulm areas in Germany amid the pandemic. Therefore, understanding the basic characteristics of the sample is necessary before heading to analyse the survey results regarding specific objectives of the study.

Age:

	18-25	26-35	36-45	46-55	55 & above
Age	38	60	1	1	-

Table 2: Participants' Age Group

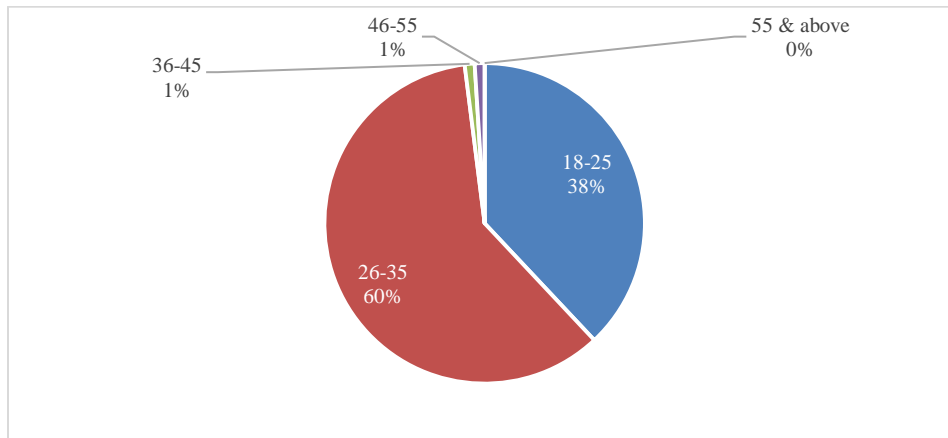


Figure 3: Participant's Age Deviation

The research sample was highly dominated by the 26-35 years age group as 60% participants belonged to this group. On the other hand, participants from 18-25 years age group appeared as the second largest age group with 38% prevalence.

Age group 36-45 and 46-55 years had only 1% prevalence each, while none belonged from 55 years & above age group. Therefore, both bachelor's and master's students participate in the survey.

Gender:

	Male	Female	Prefer not to say
Gender	73	27	-

Table 3: Participants' Gender

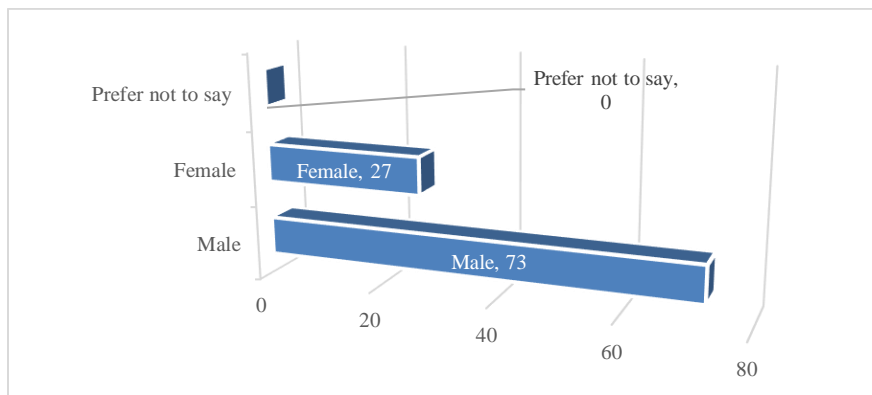


Figure 4: Participants Gender Ratio

The research sample was distributed at a 73:27 male to female individual ratio indicating a male dominance over female with university education in Ulm and Neu-Ulm areas in Germany or male participants were more willing to complete the survey amid the last pandemic.

Profession:

	Current student	Ex-student	Faculty member	Others
Profession	50	50	-	-

Table 4: Participants' Profession

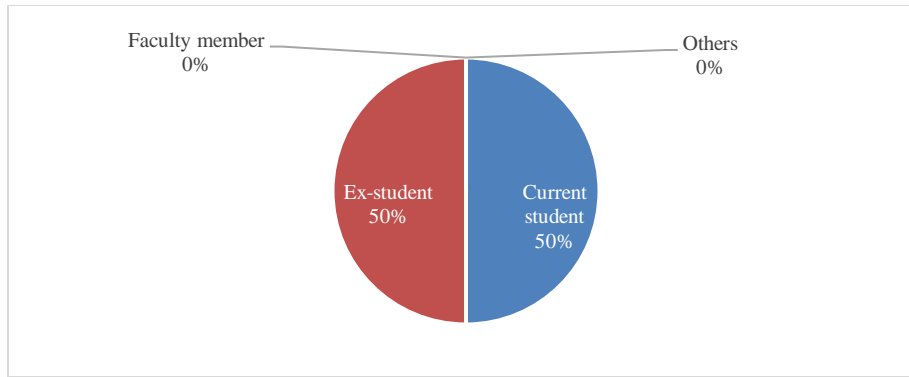


Figure 5: Participants Profession's Ratio

The research sample consisted 50% current students and 50% ex-students from universities of Ulm and Neu-Ulm areas in Germany during the last pandemic. Apparently, no participants were faculty members or administrative staff involved with these universities in this research.

University/Institution:

	University of Ulm	Ulm University of Applied Sciences (THU)	Neu-Ulm University of Applied Sciences (HNU)	Ulm University Hospital	Others	Did not answer
University/Institution	41	22	18	6	10	3

Table 5: Participants' Associate University/ Institution

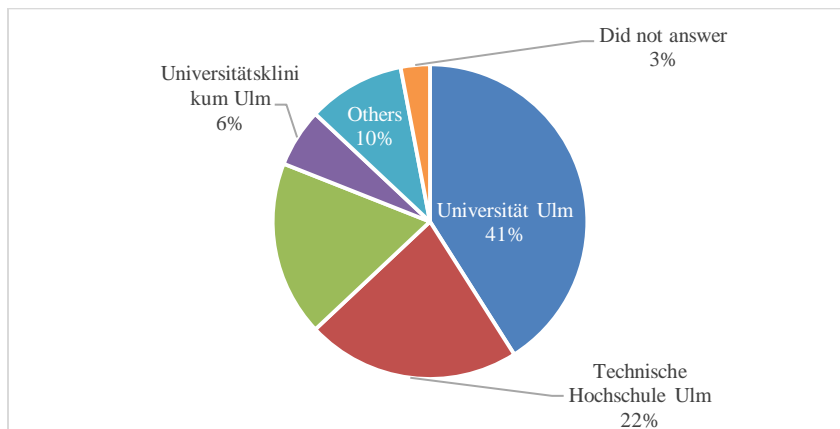


Figure 6: Participants University/ Institutions' Ratio

In the research sample, participants from University of Ulm appeared to be the largest group as their prevalence was 41%. On the other hand, participants from Ulm University of Applied Sciences appeared to be the second largest group as they existed in the sample with 22% prevalence. Participants from Neu-Ulm University of Applied Sciences captured the third largest position in the sample with 18% prevalence, while 6% of total participants were from Ulm University Hospital and 10% were from other universities. Apparently, 3% did not reveal which institutions they were from or studied.

4.2 Descriptive analysis

The survey data obtained under this study has been analysed using a descriptive analytical technique. In the descriptive analytical approach, specific research objectives stated earlier have been addressed with the help of responses received from the survey participants and we examined them in accordance with three different research questions (RQs) separately.

RQ1: To evaluate the effects that the widespread COVID-19 epidemic has had on higher education among university students in Germany, with a particular emphasis on Ulm and Neu-Ulm.

Q1: Do you think the pandemic has significantly influenced the regular education system in Germany?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q1	2	4	3	28	63

Table 6: Participants' Response on Survey Question No- 01

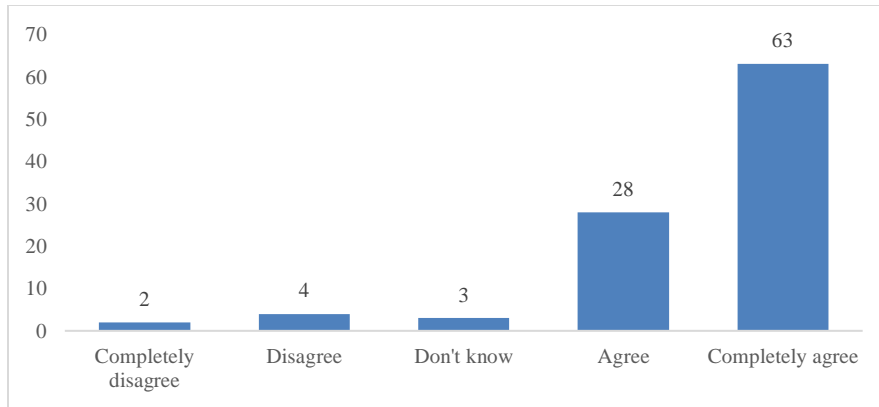


Figure 7: Participants' Response on Survey Question No- 01

The first question under RQ1 was whether the survey participants believed that the pandemic had influenced the regular academic curriculums in German universities significantly. In response, majority survey participants agreed that the pandemic had significantly drastic effects on the continuity of the regular educational programmes in universities in Germany. Majority participants that is 91% has agreed with the statement, while 6% opposed to it and 3% retained neutral position.

Q2: Have you struggled in adapting to the sudden change in the education system (Online Semester) due to the pandemic?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q2	2	7	1	32	58

Table 7: Participants' Response on Survey Question No- 02

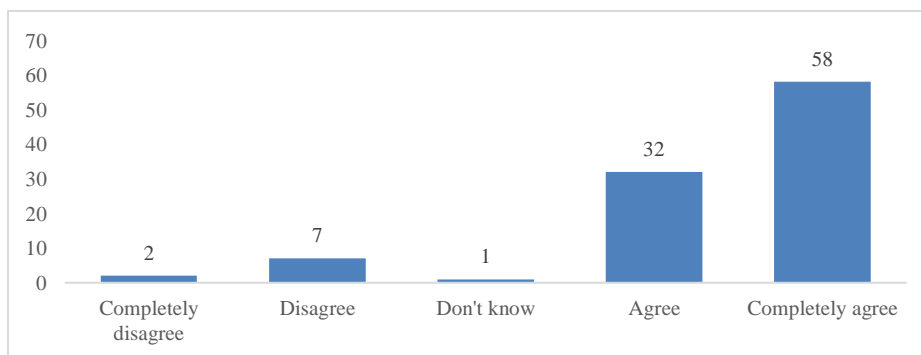


Figure 8: Participants' Response on Survey Question No- 02

While asked the second question under RQ1, most of the survey participants agreed that they experience significant troubles to cope with the online education techniques that had been introduced by the German universities and continued throughout the pandemic for smooth progression. Among the survey participants, there are 90% participants agreed that they struggled with the sudden changed in the education systems introduced by the universities in Germany (shifting from conventional/physical classroom experience to online classes). On the other hand, participants with low majority that is 9% disagreed and claimed they could adapt with the new online semester systems smoothly. However, niche participants, which is 1% did not have any opinion regarding this.

Q3: Have you felt any type of mental pressure or pressure due to the sudden remote learning procedure during the pandemic?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q3	5	6	-	26	63

Table 8: Participants' Response on Survey Question No- 03

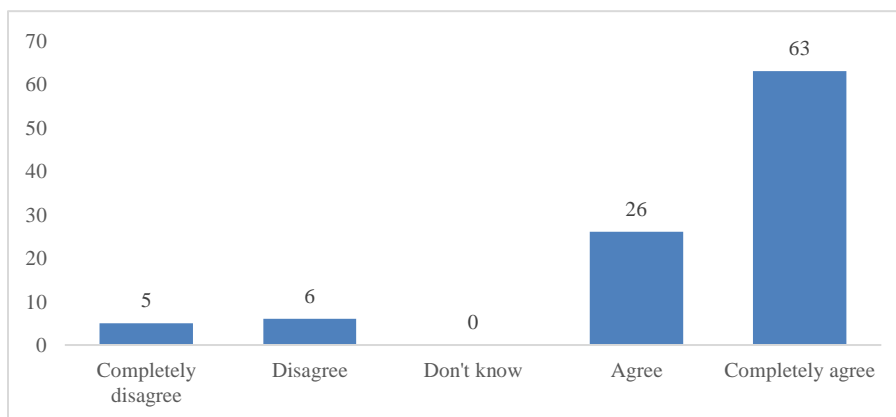


Figure 9: Participants' Response on Survey Question No- 03

In response to the third question under RQ1, majority participants expressed that they experienced mental pressure or stress due to rapid changes in the education system adopted by the universities in Germany.

Among the participants, majority that is 89% agreed that they felt extreme mental or adaptation (of online education systems) pressure during the pandemic. On the other hand, participants with 11% disagreed to this statement and asserted that they felt no pressure (mental or technical) to adapt with the sudden remote learning tools and techniques amid the pandemic.

Q4: How did you consider that online learning hampered the way of obtaining practical knowledge from academics?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q5	2	10	3	33	52

Table 9: Participants' Response on Survey Question No- 05

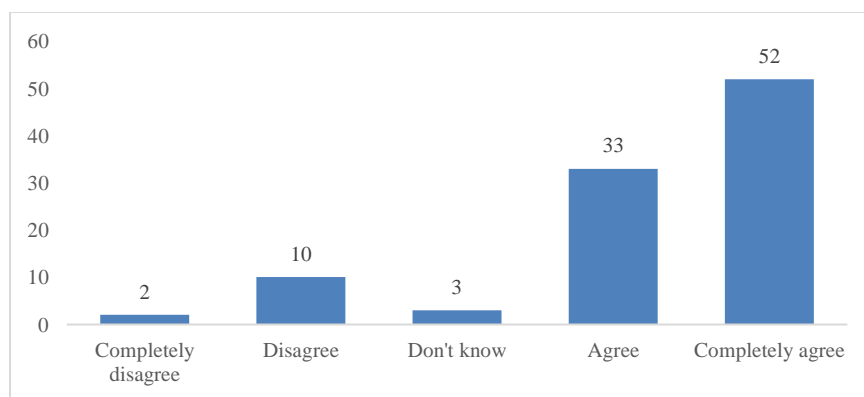


Figure 10: Participants' Response on Survey Question No- 05

The fourth question asked under RQ1 was whether the participants deemed online learning techniques hampering smooth acquisition of practical and realistic knowledge under academic curriculum, and majority participants considered online learning techniques hampering practical knowledge acquisition. Among the participants, near about 84% participants considered that their requirement to obtain practical knowledge from academic curriculum was hindered by online learning technique amid the pandemic. On the contrary, second most majority participants that is 12% disagreed and exerted that they had no issues with obtaining practical experience from the online learning curriculum provided by German universities during the pandemic.

However, lowest portion of the participants that is 3% participants did not provide any opinion regarding the statement.

Q5: Do you believe that online learning was equally effective as compared to the pre-pandemic period?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q5	47	39	1	6	7

Table 10: Participants' Response on Survey Question No- 06

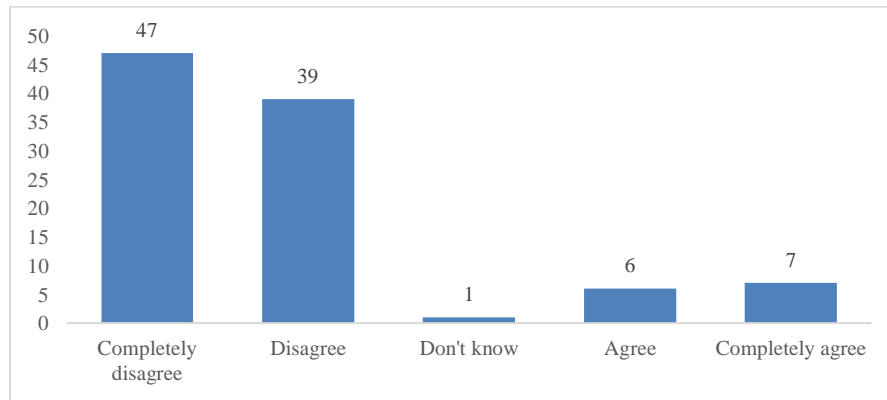


Figure 11: Participants' Response on Survey Question No- 06

In response to the fifth question asked under RQ1 of the study, majority participants opined that online learning techniques could hardly be as effective as the conventional or physical classroom techniques during the pre-pandemic period. Larger portion of the participants that is 86% participants disagreed with the statement that online learning techniques could be equally effective as physical classroom learning techniques. However, the lower portion which is 13% opined in favour of the statement while 1% remained neutral to it.

RQ2: To investigate the procedures that universities in Ulm and Neu-Ulm put into place to ensure the mental well-being of their students and to prevent any disruptions in their study while the COVID-19 epidemic was ongoing.

Q1: Have you received the necessary support like guidelines, apps, usage instructions, module info, etc. from the university and the faculties for education during the pandemic?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q1	17	34	1	25	23

Table 11: Figure 12: Participants' Response on Survey Question No- 04

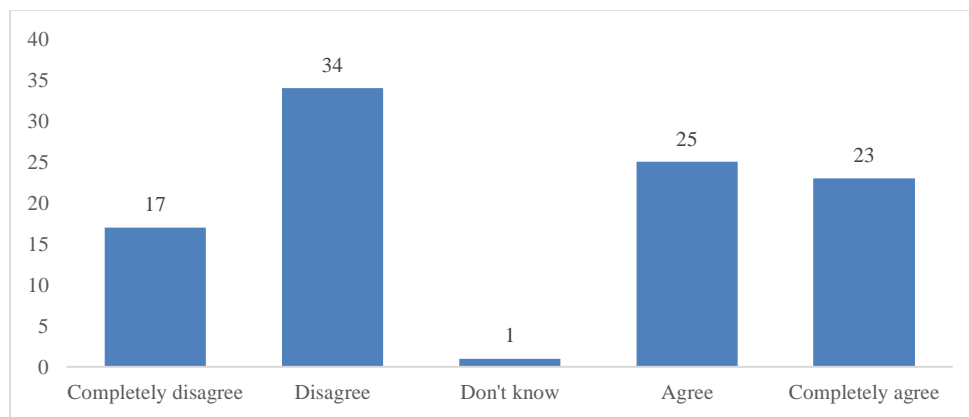


Figure 12: Participants' Response on Survey Question No- 04

The first question set under RQ2 was whether the participants received necessary support from the universities as well as the teachers/module leaders regarding the courses under the online module/curriculum during the pandemic. Among the survey participants, there is 48% of participants agreed upon their receipt of support from their universities and faculties in different form, such as module information and guidelines, apps and usage instructions, etc., during the pandemic time while they had to undergo online classes operated by the German universities. However, more than half portion of the participants that is 51% disagreed with the belief of the earlier group and claimed that they did not receive necessary support from their associated universities and faculties under online courses during the pandemic. Only 1% participants had no opinion regarding the issue.

Q2: Analyse the statement: “The faculty members were helpful and empathetic towards the students in the sudden shift to online learning procedure”.

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q2	6	39	1	38	16

Table 12: Participants' Response on Survey Question No- 07

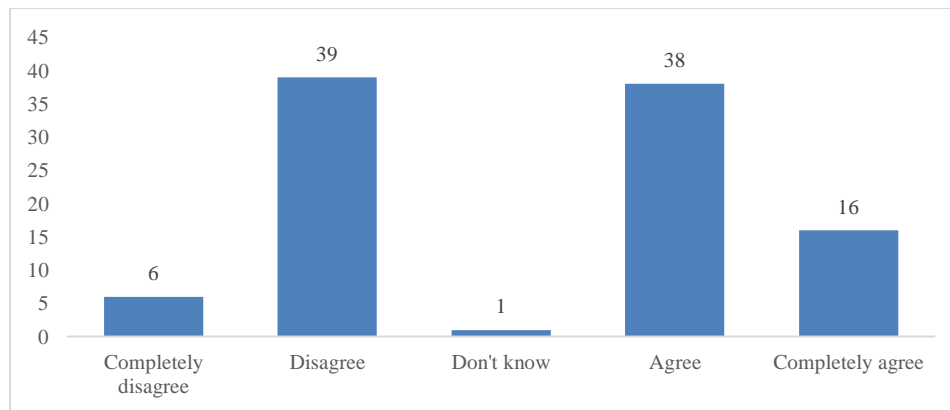


Figure 13: Participants' Response on Survey Question No- 07

The second statements thrown before the participants under RQ2 was whether the teachers/module leaders or instructors were helpful, supportive and empathetic towards the sudden change in learning techniques under university curriculum during the pandemic. Majority portion that is combined with the answers “Agree” and “Completely Agree” consist 54% of the participants asserted that they had excellent faculty members who were extended help and support to their students and exhibited good rapport with the situations of the students in facing the changing scenario of learning techniques from conventional/classroom experience to online experience. On the other hand, other 45% participants opposed to admit such claim while 1% did not provide any opinion on it.

Q3: How do you consider the statement: “The modes, platforms and digital tools used by the universities in digital education were effective and suitable according to the student needs”?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q3	36	15	1	32	16

Table 13: Participants' Response on Survey Question No- 08

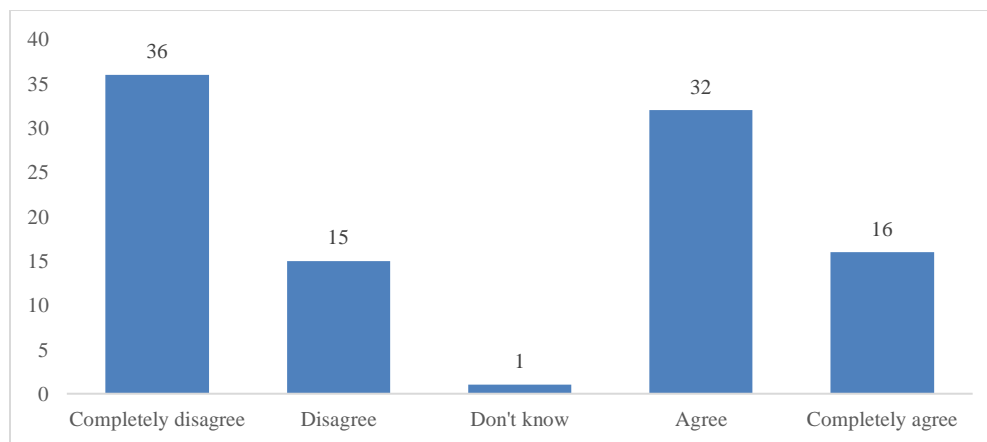


Figure 14: Participants' Response on Survey Question No- 08

The third issue raised under RQ2 to capture the perception of the participants was whether the modes, platforms and tools suggested and provided by the universities to implement their digital education strategies were effective and suitable as per the students' requirements. Among the participants, 48% agreed that the tools and materials provided or suggested by the universities were very effective for their online classes and modules, which suited their requirement efficiently during the online curriculum launched by the German universities. However, 51% opposed to this purview and expressed their disagreement with the statement by asserting that the tools and materials were not effective or suitable with their requirement at all. Only 1% participants remained neutral to this statement.

Q4: Evaluate the sentence: "University's different departments organize several online motivational programs, methods, and practices during the pandemic to relief the stress and better mental health".

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q4	5	17	2	56	20

Table 14: Participants' Response on Survey Question No- 09

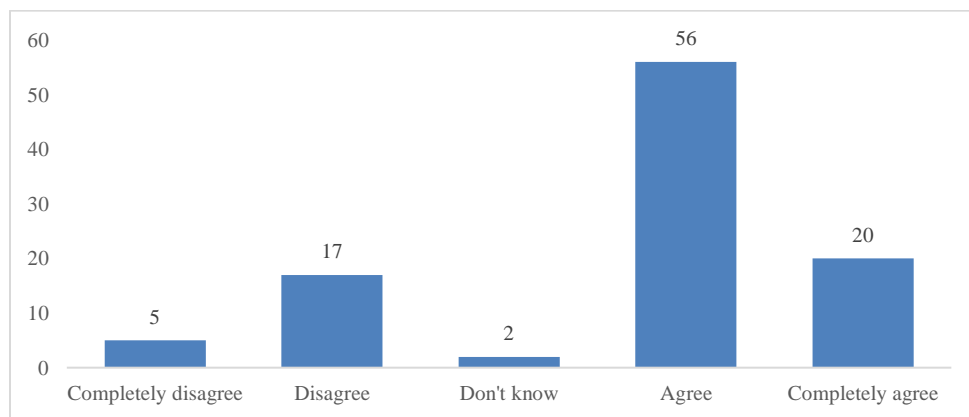


Figure 15: Participants' Response on Survey Question No- 09

The fourth statement provided under RQ2 before the survey participants was whether different departments of their associated universities arranged multiple online motivational programmes, methods and practices during the pandemic period which would be helpful for the students to overcome their stress and lead them towards better mental health. In response to this statement, 76% participants agreed that their departments have arranged such campaigns to help them deal with their mental or technical stress amid the pandemic time while undergoing online courses and modules under their universities. On the other hand, 22% participants did not receive any such campaigns while 2% did not answer to this question.

RQ3: To explore the several forms of assistance that are made available to students at the universities in Ulm and Neu-Ulm in order to assist them in overcoming the detrimental effects that the COVID-19 epidemic has had on their social lives.

Q1: Consider the statements: “The faculty and also the university tried to arrange and provide financial assistance like scholarships, emergency aids, etc. during the pandemic”.

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q1	8	16	3	54	19

Table 15: Participants' Response on Survey Question No- 10

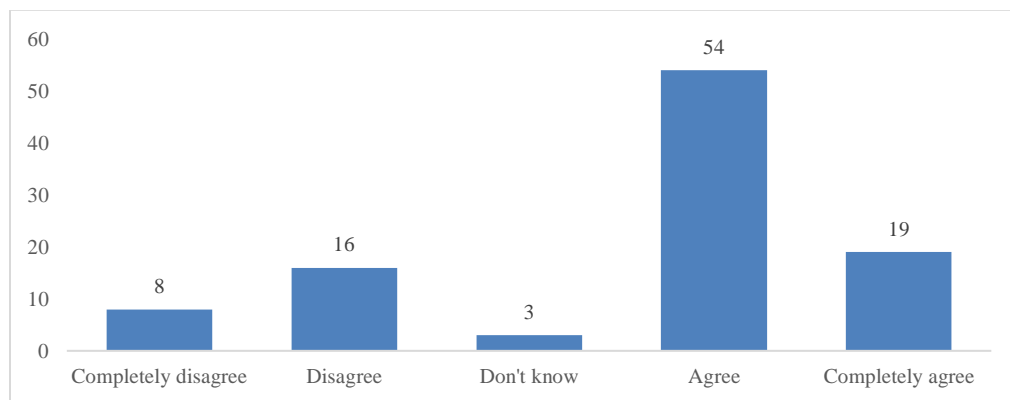


Figure 16: Participants' Response on Survey Question No- 10

The first statements raised under RQ3 was whether the faculty members and universities attempted for arrangement of financial assistances for the students who required for them during the pandemic time to smoothly continue their studies. In response, 73% participants agreed that their faculties and universities arranged or helped pursue different financial assistances, in the form of scholarships, emergency aids, etc. during their studies in online courses/ semester under German universities. On the other hand, 24% participants did not find or could not enjoy any such assistance. Only 3% participants remained indifferent to the statement.

Q2: Did you feel that the academic and administrative processes and activities were hindered and in some troublesome tasks during the pandemic?

	Completely disagree	Disagree	Don't know	Agree	Completely agree
Q2	7	4	3	34	52

Table 16: Participants' Response on Survey Question No- 11

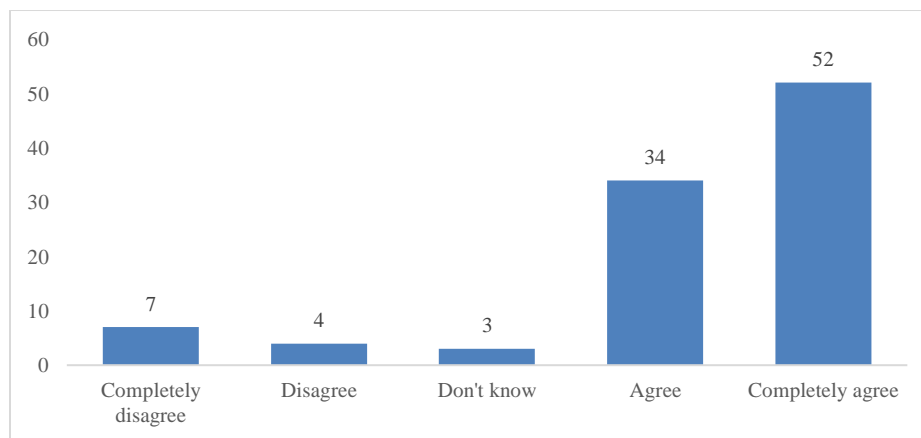


Figure 17: Participants' Response on Survey Question No- 11

The second question asked under RQ3 was whether the participants felt that the academic and administrative processes and activities were hindered and contained some troublesome tasks during the pandemic. In response to this question, vast majority participants opined in agreement exerting that many academic and administrative processes as well as activities created issues while they were undergoing online academic courses provided by the universities. On the other hand, 11% participants disagreed to this and asserted that they found all academic and administrative process smooth and consistent. Only, 3% participants did not answer to the question.

The next two questions furnished under RQ3 was what the participants' personal best and worst experiences during online teaching during the pandemic were. In response of this open-ended question, the respondents provided many opinions, which have been, analysed an arranged under some core themes. As the participants had the freedom to put down more than one experience as their worst or best ones, the total frequencies could be more than total number of experiences participants.

Q3: What was your personal best experience during online teaching in the pandemic? Please explain your experience shortly.

Q3	
Excellent dedication of the teachers/module leaders	31
Easy apps	18
Structured/organised course modules	17
Organised classes	15
Online classes and exams	14
Clear instructions and guidelines	12
Did not answer	9
Effective time management and personal care	8
Others	4
Financial assistance/aid	2

Table 17: Participants' Response on Survey Question No- 12

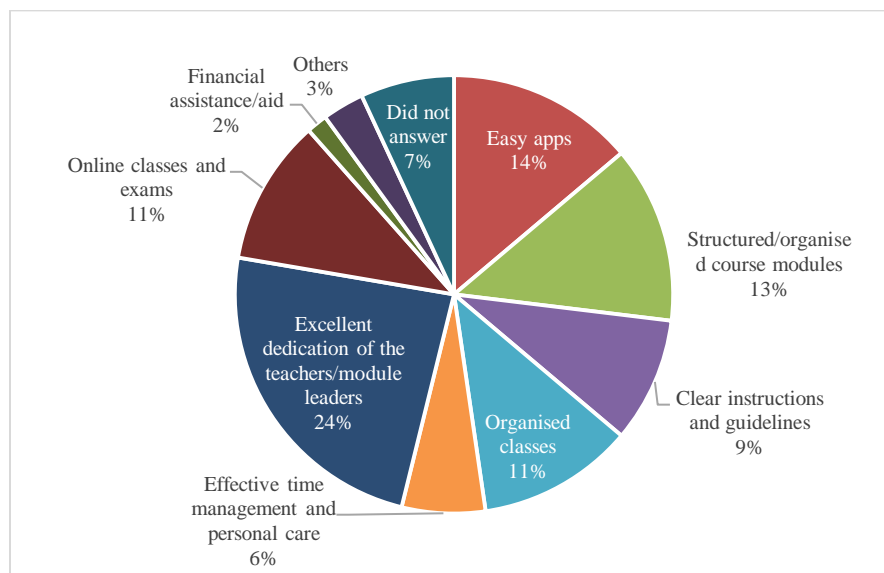


Figure 18: Participants' Response on Survey Question No- 12

In response to what their best experiences were while pursuing the online classes arranged by the German universities during the pandemic, 24% of opinions came in favour of the excellent support and dedication of the teaching staff assigned to the modules. The respondents asserted that their teachers or course instructors were helpful and went extra-mile to make lessons easy and understandable to them. Moreover, they tried to engage with individual students even during the online classes where it is hard to maintain equilibrium of attention to all students. Among the experiences, 14% of opinions were in favour of the use of easy and user-friendly apps for the online classes.

The respondents opined that they had good and smooth experiences dealing with the app suggested or provided by the universities or admin offices to carry on with their online studies as the instructions and interfaces were easy to understand and use. On the other hand, 13% of opinions came in favour of structured and organised course modules where the respondents found their course planning and lessons easy to understand and convenient to execute. Moreover, 11% of opinions supported organised classes, and online classes and exams as the best experiences during the online education systems in the pandemic. Respondents with these opinions agreed that they received well-planned and prudently designed class routines for their classes, and on top of that, they found the techniques applied to take the online classes and exams easy and convenient which was an added benefit to their online academic curriculum designed by the universities.

In addition, 9% of opinions asserted that the course modules, classes, exams and app-related instructions and guidelines provided by teachers and administrative staff were clear and easy to understand and execute. Besides, 6% of opinions stated that the students had extra time for themselves, which they could spare for themselves, owing to the online classes saving much of their time, and 2% received financial assistance from the universities or any other sources amid the financial crisis emerging from the pandemic. The lowest 3% of the open answers asserted other experiences as their best ones which included receiving motivational sessions for relieving stress, online counselling, etc., while 7% did not respond to the question.

Q4: What was your personal worst experience during online teaching in the pandemic? Please explain your experience shortly.

Q4	
Confusing app design and vague instructions	24
Complex structure of online classes and exams	21
Complex administrative procedures	18
Non-cooperative teachers/module leaders	14
Unavailability of required e-books	12
Hard to understand course modules	11
Lack of physical connections and communication gap	9
Did not answer	8
Connectivity and other online issues	7
Monotony and other physical nuisance	6
Others	6

Table 18: Participants' Response on Survey Question No- 13

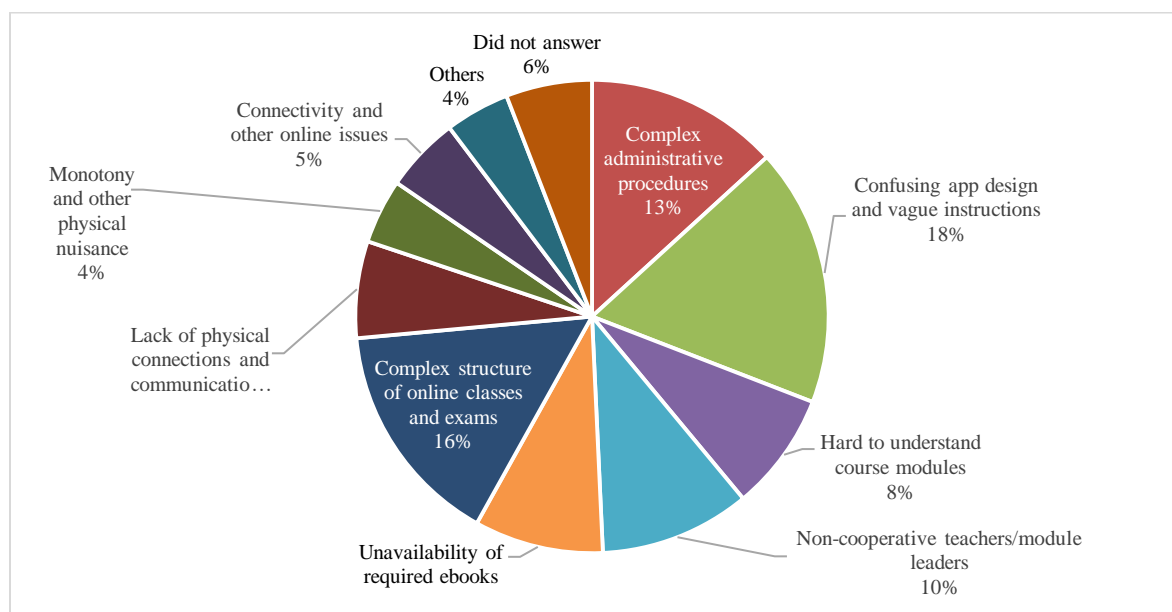


Figure 19: Participants' Response on Survey Question No- 13

In response to what their worst experiences were while pursuing the online classes arranged by the German universities during the pandemic. Near about 18% opinions were in support of confusing design and vague instruction to use the app provided for the online courses, and 16% were in support of complex design of course curriculum and online module for classes and exams arranged by the teaching staff. On the other hand, 13% opinion indicted to the complex administrative procedures as the worst experience due to some troublesome, monotonous and lengthy tasks or paper works the students have to take care of during their online enrolment and the entire online curriculum. Moreover, 10% opinions were in favour of bad experience with the teaching staff where the students found their respective teacher or module instructor as unfriendly, not engaging with the class, inattentive to students' requirements and emotionally disconnected.

Besides, 9% opinions asserted that students did not find the electronic copy of the books suggested or referred by the course instructors for the online classes, and 8% opinions suggested that the course module designed were hard to understand for the students. In addition, 7% opinions appeared in support of lack of physical connection and communication gap of the students with their instructors and peers amid the pandemic while the universities discouraged physical attendance and promoted online curriculum for the health safety of the students. Along with, 5% faced connectivity and other internet or technical issues while trying to attend online classes, while 4% suffered stated monotony and other physical issues as their worst experiences during the online courses. Also, 4% opinions exerted other issues as the worst experiences of the respondents which included missing the original university experience, lack of financial assistance, etc. However, 6% refrained from participating in this question.

4.3 Discussion of key findings

The findings of the descriptive statistical analysis of the online survey helped address the specific research questions of this study. In this part of the dissertation, whether the research objectives have been achieved will be evaluated in light of the findings of the descriptive analysis conducted and key literature reviewed in this study.

The first objective was **“to evaluate the effects that the widespread COVID-19 epidemic has had on higher education among university students of Ulm and Neu-Ulm”**. From the survey analysis, it was revealed that most of the respondents had the purview that the Covid-19 pandemic affected higher education systems in the German universities of Ulm and Neu-Ulm areas significantly and drastically. The study of Zawachi-Richter (2022) also found similar results where the author claimed that the universities initiated online modules very hastily to launch digital courses by predicting the adverse effects that the pandemic would have on higher education of the pursuing students. On the other hand, Plakhotnik et al. (2021) evaluated the critical impacts pandemic on the higher education pursued by university students and assessed how the strict social distancing rule imposed by the authorities had forcefully closed down physical classes and exams in the universities in Germany. Therefore, it is evident that the effects of the Covid-19 pandemic on the higher education systems operated by German universities in Ulm and Neu-Ulm areas were mostly adverse.

The survey analysis of the current study resulted that most of the university students in the Ulm and Neu-Ulm areas of Germany have passed hard times adapting with the changing course techniques, which had gone, online from traditional physical classes. This has been supported by Breitenbach (2021) as the author found evidence in favour of Germany’s changing education system amid the pandemic crisis which caused immense trouble for students through much hardship to adapt with the changing facets of the curriculums designed by the academic institutions. Similarly, Hörtnagl-Pozzo et al. (2021) argued that students faced trouble during the pandemic while their universities sketched them to come along their plans to organise online courses where many general and technical issues may arise.

On the contrary, the current study further found that the changing dynamics of German universities education plans during the pandemic have caused severe mental pressure on the students, while they also found it tough to cope up with remote learning process very fast. In this regard, Weiss et al. (2022) have proved that students preferred conventional ways of classes where they could connect with the teaching staff in person and get the physical amenities of their campus sites.

However, the authors revealed that this convention was critically hampered by the outbreak of the Covid-19 pandemic in Germany, which frustrated most of the university students they investigated. In this connection, the current study also revealed that the survey respondents were in the belief that online course modules hampered their orientations to practical experiences from academic education while it was firmly believed that online teaching techniques might not be as effective as the conventional methods that teachers used before the strike of the pandemic. According to Plakhotnik et al. (2021), though online learning techniques have some competitive edge over the traditional methods, the true essence of the university education can only be achieved through personal connection in the physical classes where students are not only taught about course lessons, but also exhibited different philosophical aspects of life. The absence of such integration may lead the university students to unfulfilled milestones and never-ending depression. Therefore, online teaching methods amid the pandemic are deemed not as effective as the conventional methods used before the pandemic struck Germany.

The second objective was **“to investigate the procedures that universities in Ulm and Neu-Ulm put into place to ensure the mental well-being of their students and to prevent any disruptions in their study while the COVID-19 epidemic was ongoing”**. The survey analysis provided the idea that almost half of the participating students received necessary support from their associated universities and teachers while the rest half claimed to not receiving such support amid the pandemic during their online courses by German universities. In a study conducted by Noid et al. (2021), faculty members of German academic institutions claimed to extend their all-out effort to support their disciples even when the universities have not asked them to do so. However, a survey conducted by Besa et al. (2021) indicated the students’ claim of getting frustrated after the start of their online classes amid the pandemic owing to lack of social support which they expected to receive just a year before when the situation was normal. As such, the current study indicates a mix opinion of the respondents regarding support extended by teachers, university staff and universities to continue the academic programmes smoothly amid the pandemic, which had also been supported by the literature.

The study also identified that German university students from Ulm and Neu-Ulm areas agreed that they received good rapport and empathetic behaviour from their supervisors, teachers and module instructors during their online classes. While in most of the developed nation, teachers are well acquainted with the digital tools and techniques which they needed to continue their teaching during the pandemic, teachers from developing and least-developed countries lagged behind in this connection (Babbar and Gupta, 2022). In this case, teachers performance were low to exhibit empathetic behaviour, moral support and social connection with their students using such inconvenient communication mediums. However, adapting with the changing dynamics of teaching profession may help teachers align their understanding and mental stance with their students.

As the survey results appeared, around half of the responding students from German universities of Ulm and Neu-Ulm areas claimed that the mode, platform and digital tools used by the universities for online classes were not effective and suitable for the students, whereas the other half admitted that they found the tools and platforms effective and suitable according to their requirement. In this regard, the findings from Babbar and Gupta (2022) can be reiterated where they mentioned that effective platforms must be selected and provided to the students to ensure smooth experience on their end. On the other hand, Reisach et al. (2022) argued that the role of teaching staff is critical for successful online classes during the pandemic. Thus, selecting smooth and convenient platforms is also necessary for the teachers to make effective lesson plans and execute the same for online classes. This will also help them connect with the students better and recurrently to extend their moral support to them.

The current study found that most of the students agreed upon that they obtained counselling, motivational sessions and other stimulation to boost up their morale and overcome their stress, depression and frustration while pursuing their online courses with the universities. In this connection, the study of Bensaid and Brahimi (2021) indicated that institutions have a lot to do for their students during the pandemic apart from just providing up-to-the-mark education. They need to focus on maintaining strong support lines for the student to deal with any of their mental and physical conditions in pursuit of their online learning amid the pandemic.

The third objective was **“to explore the several forms of assistance that are made available to students at the universities in Ulm and Neu-Ulm in order to assist them in overcoming the detrimental effects that the COVID-19 epidemic has had on their social lives”**. The current study indicates that most of the students received financial support from the universities or arranged by their universities to continue their studies amid the pandemic smoothly. The current study also found most of the participating students in the survey found many administrative and academic processes very troublesome, which hindered their regular pace of study amid the pandemic. As appeared from the study of Reisach and van Kempen (2021), course instructors and teaching staff were able to use different apps and online platform to operate online courses, which falls in line with the findings of the current study. However, Filho et al. (2021) stated in their study that as the interactions with their colleagues reduced, teachers were less motivated to devote in helping out students in maintaining good mental states amid the online courses. Thus, the role of the universities and the teachers have been considered both positive and negative considering the students’ opinions, as appeared in this study.

The study suggested that the participating students had mixed feeling regarding their experiences during the pandemic when the German universities in Ulm and Neu-Ulm areas continued their online education programmes instead of the regular curriculums. Among the good experiences, the participants mentioned about dedication of the course instructors, ease of using the online apps, organised course modules, and well-planned online classes and exams, etc. On the other hand, when iterating bad experiences, the participants mentioned about their struggle to handle the apps, complexity to deal with the online classes and exams, complex administration procedures, and lack of empathy from the teaching staff, etc.

In this support, results from the study of Almomani et al. (2021) can be mentioned where the authors claimed that students have undergone critical psychological changes. That they dealt with personal drives along with different sessions, campaigns and counselling programmes provided by their universities, as well as the involvement of their teachers personally with their cases to make them believe and pursue for overcoming stress, anxiety, monotony and depression.

Though many of the students may have faced very difficult time during the pandemic, many could continue their educational and professional pursuit with the help of their associated institutions (Prowse et al., 2021). As such, it is evident from the current study that German universities of Ulm and Neu-Ulm areas have initiated different campaigns and programmes to help their students fight with depression, anxiety and other personal health and mental issues during the pandemic, which has also been supported by previous literary works.

Chapter Five: Conclusion and Recommendations

5.1 Summary of results

The results of the study have been obtained from the survey analysis conducted on 100 participants who are associated with universities from Ulm and Neu-Ulm areas in Germany. After reviewing the results, it has been found that academic life and education flow of students of have been hampered significantly due to the outbreak of the Covid-19 outbreak. As the pandemic spread rapidly in the European countries, including Germany, social distancing appeared very urgent and mandatory for the people to prevent the mass spread. As such, the university students have also suffered from the outbreak, which is apparent from the feedback of the survey analysis conducted on the individuals associated with universities from Ulm and Neu-Ulm areas in Germany. The majority survey participants had the purview that their studies have been hampered during the pandemic and they have undergone physical discomfort and mental stress due to the intense uncertainty of their higher education during the time. However, it has been observed from the survey results that the universities, as well as the teachers and instructors, have worked hard to innovate convenient alternatives to conventional method of campus-based education as a continuity plan to smoothen the academic curriculums amid the pandemic.

The study suggests that the teaching staff have played a tremendously effective role in carrying out the online modules arranged by the German universities from Ulm and Neu-Ulm areas during the pandemic. As appeared from the results, the universities have introduced online courses as alternatives to their regular physical classes, which they used to take during the pre-pandemic time. To facilitate these, they have introduced apps and digital platforms where students and teachers will connect and interact regarding different academic issues. On the other hand, the administrative process have appeared troublesome, and sometimes, very chaotic to the participants, as many of those were hard to complete online during the time of social distancing where physical visit were not expected in university campuses. However, the contribution of the teachers and instructors have been as per the survey participants, yet there were mixed opinions regarding this.

To some participants, the teachers have helped their students with superior dedication to continue their academic and professional pursuit, as well as to maintain an open and fine outlook towards life amid the grave crisis of the pandemic. On the contrary, some participants found teachers to be very distant from their pupil and lacking empathy.

5.2 Conclusion of the study

The study focused to investigate and evaluate the impacts of the Covid-19 pandemic on university students in Ulm and Neu-Ulm of Germany. Apparently, it found severe struggle of the students of universities from Ulm and Neu-Ulm in Germany during the pandemic. It was revealed that the students have undergone mental and well as health issues during this crisis when they could not attend physical classes and had to forcefully adapt with the changing techniques of learning at higher level of education. With this understanding, the first objective, i.e., to evaluate the effects of the Covid-19 pandemic on higher education of the university students from Ulm and Neu-Ulm areas, was achieved.

It was revealed from the study that universities understood the gravity of the problems of their enrolled students and took measures to mitigate the exposure hampering their natural mental and physical conditions during the pandemic. In this regard, universities, in collaboration with different third parties and teaching staff, arranged online counselling programmes, webinars on how to deal with paradigm shifts in higher educational systems, workshops on mental health, online career campaigns, etc. which helped the students maintain a sound vision about their academic and professional career without getting deviated by the intriguing effects of the pandemic. In line with these understandings, the second objective of the study was also achieved from the survey.

Furthermore, it was also found that many students suffered from financial crises amid the pandemic as their regular cash flow might have hampered due to the strictly maintained social distancing to keep a spread-free society. It was intriguing for many students and they might have ceased to continue their studies if there were no financial assistance from their associated universities or from other partners.

The study revealed that the university authorities as well as the teaching staff have been very helpful to the needful students in arranging necessary financial assistances, in the form of fee waiver, scholarships, stipends, part-time jobs, etc., which ensured their continuity of higher education, even during the peak of the spread of the pandemic. This understanding helped achieve the third objective of the study. Overall, the survey analysis have effectively achieved the specific objectives of the study.

5.3 Recommendations

One of the motives of conducting this primary survey research has been to identify some plausible solutions for the stakeholders of German higher education systems, i.e., students, teachers and university authorities, to smoothly continue their activities during the pandemic. In line with the results of the study, some strategies can be recommended for each stakeholder, which have been furnished herein.

For Students:

- Students should be able to adapt newly innovation and technique regarding online learning process in order to keep their pace with the suddenly changing standards in the higher-level education. In this regard, they need to be aware of the updates, changes and modifications about the technologies relevant to their studies.
- Students should learn and participate practicing mental and physical exercises to overcome monotony, anxiety and depression, which have been appeared very intriguing in time of online academic course arranged by the universities. To keep a sharp purview and clear vision about the future, students cannot afford deviating from their track by blowing away by any mental and physical nuisances during the pandemic or any other uncertain situation. In cases, they should seek out help from family members, friends, teachers, university authorities, and even professionals, if necessary.

For Teachers:

- As the role of teachers and instructors have been found very critical in continuing smooth and efficient higher education over online platforms during the pandemic, teachers and instructors need to focus more on developing their technological skills and adapt with the changing tools and methods more swiftly to guide students through their entire journey. In this regard, they need to understand that the online learning and teaching processes need to be collaborated in a singular point, which they help to smoothen and strengthen by accommodating more skills that are efficient.
- Teachers and instructors should keep an open mind to extend their support to their pupil to overcome any challenges coming towards their academic progressions. Therefore, they need to be more empathetic towards the students to understand their issues hindering them to excel during the online courses and extend rapport to improve their academic career.

For University Authorities:

- University authorities, particularly their administrative offices, play a very critical role in the success of online academic sessions where the policies and processes are formulated and executed by the authorities. While planning such strategies, they should consider to make them student-friendly and ensuring that their acceptability among the teachers are also measured. In this way, the authority can play the role of a mediator of the other two stakeholder groups.
- University authorities need to come forward with more effective and frequent campaigns regarding financial support, mental health and academic plan for helping out the students in need of these. It will be beneficial for the students during the pandemic when they are not able to experience regular classes, which may lead to many health, mental, financial and social issues intruding their academic and professional life in future.

5.4 Limitations of the study and future alleviation plans

The major limitation of the study was its short sample size, which cannot confirm the mitigation of the risk of inconclusive results. Therefore, a larger sample size may be curated in future research to access a more effective and reliable outlook about the results related to the underlying search topic. Moreover, the study was confined within a survey analysis where individuals associated with universities from Ulm and Neu-Ulm areas of Germany. Nevertheless, the results suggested that all 100 participants were either current or ex-students of the universities, while no teachers or administrative staff participated in the survey, which appeared to be a major drawback of the investigation. Since the sample was constituted with all-student participation, a possible bias can be existed in the results. Therefore, inclusion of teachers and administrative staff can be ensured through running separate investigation for each stakeholder group to ensure their participation and assess their outlook or opinion regarding the underlying search topic. In this regard, direct interview sessions can be arranged in future research to obtain the views of teachers and administrative personnel regarding the subject topic. Moreover, the primary research data obtained from the survey has been analysed using a descriptive statistical analysis, which only provides idea about the basic and average characteristics of the research data. However, including advanced level inferential statistical analyses such as correlation and regressions analysis, independent t-test, F-test, etc. may provide more results that are robust and help understand the cause-effect relationship between underlying variables. On the other hand, to analyse the primary data to be obtained from direct interviews (as planned to conduct in future investigation), thematic analytical technique can be used to assess the opinions and purviews of the teachers and university administrative personnel.

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Appendix

Systematic Literature Review (SLR)

Research Question-01: What are the negative impacts of Covid-19 on the higher education of university students in Germany?

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/Sample)	Summary of the main findings
1	Quantitative; Survey; Case Study	The effects of the Covid-19 pandemic on teaching and learning at universities in Germany	Olaf Zawachi-Richter 2020	The current state and impact of Covid-19 on digital higher education in Germany	Germany	5,572 students from 42 German universities	The Covid-19 pandemic has forced countries to adapt the new normal style of living which included social distancing and remote interaction. Students are major stakeholders who were affected from the outbreak of the pandemic. The study took place to evaluate the remote teaching practices by German university faculties and their effects on the academic engagement of the students. The study had secondary motive of looking into the relationship of distant learning at university level and the mental state of the students. The study summarized that thought the social isolation and dis-

							<p>tant interaction caused mental stress, monotony and depression among students, there were some positive outcomes of going digital and staying distant amid the pandemic time. The study argued that the two arrangements led students to innovation and creativity to greater extent, and helped learn new techniques and improve existing skills.</p>
2	Quantitative; Survey	<p>The impacts of the Covid-19 pandemic on students' well-being and the mediating role of university support in ensuring well-being of students</p>	<p>Maria S. Plakhotnik, Natalia V. Volkova, Cuiling Jiang, Dorra Yahiaoui, Gary Pheiffer, Kerry McKay, Sonja Newman and Solveig Reißig-Thust 2021</p>	<p>The Perceived Impact of COVID-19 on Student Well-Being and the Mediating Role of the University Support: Evidence from France, Germany, Russia, and the UK</p>	Switzerland	<p>1,932 out of 2,707 university students from France, Germany, Russia and the UK</p>	<p>The Covid-19 pandemic affected people from different spheres of the society in Switzerland, and the community of students were no different. The study attempted to link students' well-being with their performance and engagement in academic activities. The study found that the students' well-being could be disrupted for their worry about completion of the degree they were pursuing, whereas their tension for future job prospects did not affect their well-being very</p>

							significantly. The study concluded with a recommendation for the student to adapt the new normal of digital learning environment which may help them overcome the adversities of the pandemic and their effects on their well-being and mental health.
3	Qualitative; Content Analysis	The links between socio-demographic characteristic and the evaluation of digital teaching offers	Andrea Breitenbach 2021	Digitale Lehre in Zeiten von Covid-19: Risiken und Chancen (Digital teaching in times of Covid-19: risks and opportunities)	Germany	International and national studies	The Covid-19 pandemic broke out very rapidly after its first in China during the late of 2019. The pandemic has changed the dynamics of education systems in most of the countries, and German universities were no different to this situation. The universities had to undertake a significant reform of their teaching methods by transforming them from physical to digital. The study looked into the pros and cons of digital teaching methods, and also how these, along with the pandemic, have affected the mental condition of the students and the teachers. The study

							results suggest that students' socio-demographic characteristics significantly and positively affect how they perceive the digital teaching environment. The students opined that though there are many perks of digital and distant teaching environment, they were led to depression due to forceful social isolation imposed by the government.
4	Quantitative; Survey	The effects of the Covid-19 pandemic on tourism training of the German-speaking university students with major of Tourism	Tanja Hörtnagl-Pozzo, Anna Klein, Markus Pillmayr and Jürgen Schmude 2021	Auswirkungen der COVID-19-Pandemie auf die deutschsprachige Tourismushochschullandschaft – aktuelle Einschätzungen und zukünftige Perspektiven (Effects of the COVID-19 pandemic on the German-speaking tourism university landscape - current assessments and future	Germany	German-speaking university students majoring in Tourism	The Covid-19 pandemic affected the educational sectors more or less equally like the other important sectors of any nation. The normal forms of academic curriculum could be carried out due to the social distancing protocols declared by many governments around the Globe. This adversely affected the regular flow of studies of university students. As appeared in this survey analysis, the tourism education has been affected from the pandemic to double extent due to the impedi-

				perspectives)			ments to normal physical classes and interaction. Teachers and students from German universities who participated in the survey mostly opined that the studies and other academic curriculums, e.g., internship or theses, have been adversely affected from the outbreak of the Covid-19 pandemic.
5	Quantitative; Survey	The impacts of distant learning during the Covid-19 pandemic on the mental health of students	Elisabeth M. Weiss, Liane Kaufmann, Manuel Ninaus, and Markus Canazei 2022	Belastungen durch Fernlehre und psychische Gesundheit von Studierenden während der COVID-19-Pandemie (The Impact of Distance Learning During Covid-19 on Mental Health in Students)	Germany	187 psychology students from the universities of Germany	The Covid-19 pandemic led to a transformation of academic activities from conventional to digital approach. The adaptability of such transformation was not smooth among the students, and in many cases, this caused mental disturbances among them which include anxiety, frustration and trauma. This survey analysis was motivated to analyze such negative symptoms on the students' mind emerging from the prolonged social distancing during the pandemic. The study revealed that their mental stress

							levels were significantly and positively correlated with their perception levels regarding social support. The study also indicated that the effects of the pandemic were more adverse on the female students than the males.
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Research Question-02: What are the measures taken by universities to maintain the mental health and uninterrupted education of students?

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
1	Quantitative; Survey	The condition of the digital summer semester at German universities after 16 months of Covid-19 pandemic to analyse the psychosocial life situation	Kris-Stephen Besa, Dorothee Kochskämper, Anna Lips, Wolfgang Schröer, Severine Thomas 2021	Stu. diCo II–Die Corona Pandemie aus der Perspektive von Studierenden (Stu.diCo II – The Corona Pandemic from the Student Perspective)	Germany	2,527 students from the Stuttgart Media University	The Covid-19 pandemic has stimulated the students and teachers coping with new digital teaching techniques which was emergent from the massively observed social distancing in Germany. After conducting a study during the initial stage of the outbreak of the pandemic, a second study was conducted among the students when they were expected to deal with the digital learning technique better than before. The study resulted that students experienced a less migration experience and chronic diseases after a year has passed after the first study. However, a notable por-

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
		tion of young people at universities					tion reported that they encountered mental illness due to not being able to socializing according to their regular tendency. The results inferred that the digital teaching processes need to be analyzed in a detailed manner to create more opportunities for the students and to accustom them with these processes for better grip of the teaching materials delivered to them.
2	Quantitative; Survey	The attitudes of faculty members towards digital teaching formats and the effort creating digital lectures.	Ephraim Nold, Vivienne Demeter, Kurt Erdelt, Daniel Edelhoff, Anja Liebermann 2021	Dental Education During Pandemic – Cross-Sectional Lecturer-Side Evaluation For The Use of Digital Teaching Concepts In German Universities	Germany	101 lecturers of dental teachings from German universities	Alike many other teaching institutions, dental colleges and universities were also affected from the adversities of the Covid-19 pandemic. The study investigated the purview of the faculties engaged in dental teaching regarding digital teaching methods and their efforts in preparing lecture materials on digital platforms. This study on the German dental teachers revealed most of them were unfamiliar with the digital teaching techniques. The social distancing norms amid the pandemic forced them to offer online teaching and workshops even though they were no comfortable to do so. Even after a significant time has passed, the maximum of the respondents deem teaching

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							on physical presence more comfortable and convenient. However, the dental institutions have identified this common purview as a major challenge for their aim to create a digital learning environment for the students, and thus, they are intimately working with the faculties to overcome this challenge.
3	Documentary Research	Different modes of education used by educational institutes across the world	Mansi Babbar, Tushita Gupta 2021	Response of educational institutions to COVID-19 pandemic: An inter-country comparison	44 countries	102 articles	The massive outbreak of the Covid-19 pandemic has changed the fundamentals of the educational systems worldwide and forced institutions to go digital for sake of continuation of academic curriculum. The study looked into different teaching methods applied by institutions during the pandemic time and attempted an evaluation of such techniques. The paper identified that the major challenge of the techniques was the illiteracy of the stakeholders in digital behavior, and lack of access to information technologies, in the cases of some developing and less developed countries. On the other hand, the prime benefit of the digital teaching was identified as the optimal utilization of available resources to the stakeholders. The paper critiqued the contribution of the

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							academic institutions for turning the traditional teaching systems into digital to accommodate the necessities of teachers and students amid the pandemic period.
4	Qualitative; Interview	The personal teaching and learning experiences regarding distance learning during the Covid-19 pandemic	Ulrike Reisach, Anke van Kempen, Benjamin Zinger 2022	Lehr-Reflexion. Lernen auf Distanz: Lehr- und Lernerfahrungen von 2020 bis 2022 aus der Perspektive von Lehrenden und Studierenden (Teaching reflection. Learning at a distance: Teaching and learning experiences from 2020 to 2022 from the perspective of	Germany	32 teachers and 20 students from German universities	After the outbreak of the Covid-19 pandemic, numerous studies have been conducted to evaluate the effectiveness of the digital learning environments, digital learning contents and digital learning platforms, and their practicality and acceptability among the recipients. This study attempted a further evaluation of how teachers and student feel about the digital learning environment that facilitate remote learning amid this pandemic. The study's results delineated that the difficulties of demonstrating a good teaching does not depend on whether it is delivered on digital or analog channels. It depends mostly on the dedication of the teachers to deliver good educational contents and the intentions of the students to receive quality learnings from their faculties. The mutual collusion facilitates greater social interaction, and in turn, help reducing depression and anxiety regarding ca-

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
				teachers and students)			reer goals and social acceptability. The research revealed that the universities undertook great effort to implement the digital learning campaigns to smoothly continue according to the academic calendars.
5	Qualitative; Content Analysis	Different responses of higher learning institutions in the context of GCC and seismic changes	Benaouda Bensaid, Tayeb Brahimi 2021	Coping with COVID-19: Higher Education in the GCC Countries	Gulf Cooperation Council countries	International articles	The Covid-19 pandemic is deemed as one of the major impediments towards consistent education scheme among academies around the Globe. Institutes have come forward to win over this challenge to create a well-designed learning environment for the student amid the pandemic time. The study undertook a content analysis approach to critically evaluate the literature regarding the higher study institutions' attempt to prepare for an adverse situation similar to the Covid-19 pandemic, and to identify the critical roles of the higher learning institutions in improving the mental health of the students and prepare them for a drastic social change. The study revealed that the sample higher learning institutions developed digital learning systems and implemented the same in their teaching processes to combat the challenge of

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							the pandemic. While doing such, the institutions also considered their roles in good governance, as well as safety and welfare management of the students.

Research Question-03: What are the tactics that are used by universities to confront students about the negative impacts of Covid-19 on their social life?

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
1	Qualitative and Quantitative mix; Survey; Interview	Experiences regarding distance learning during the Covid-19 pandemic	Ulrike Reisach, Anke van Kempen 2021	Lessons learned? Achievements and challenges of virtual teaching at universities	Germany, Austria and Switzerland	20 faculties (11 from German Federal Scholarship Association and international liaison, 9 from universities of applied sciences and intercultural studies)	The question whether digital teaching techniques are feasible or practical emerged as intriguing after the outburst of the Covid-19 pandemic. The study focused on the in-depth understanding of the digital teaching techniques adopted by the university faculties amid the lockdown period due to the pandemic. It also attempted delineating whether the faculties were satisfied and comfortable with these teaching techniques. The

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							<p>analysis and the survey as well as the interview feedbacks helped understand the perception of the respondents regarding digital teaching methods, their practicality, and acceptability among the learners. The study found that the faculties accepted the digital teaching techniques very positively and claimed that these helped them in developing their academic expertise and career. They devoted their spare times in individual research and dissemination of knowledge at public platforms. The study also revealed that the learners were also happy with the digital teaching techniques as these helped them sparing more time for themselves, and they could utilize these for social activities of their preference. The implementation of the digital techniques were possible due to the universities' effort to</p>

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							smoothen the academic learning processes amid the pandemic and mitigating the challenges of students being depressed or frustrated due to non-mobility during the lockdown or social isolation situation.
2	Quantitative; Survey	Perceived consequences of Covid-19 pandemic on staff and their work and on students and their studies at universities, and steps taken by the universities to deal with the nega-	Walter Leal Filho, Tony Wall, Lez Rayman-Bacchus, Mark Mifsud, Diana J. Pritchard , Violeta Orlovic Lovren, Carla Farinha, Danijela S. Petrovic, Abdul-Lateef Balogun 2021	Impacts of COVID-19 and social isolation on academic staff and students at universities: a cross-sectional study	41 countries	711 university students and staff	The rapid breakdown of the Covid-19 pandemic forced most of the governments for nationwide lockdown to prevent the mass spread. The education systems in the universities were affected due to this severely. The study used a descriptive statistical approach for identification of the perceived results of the break-out of the pandemic on university staffs' work and students' studies, and delineating the measures undertaken by universities for preventing the negative results. The study found that the majority participants of the survey, which accounted for 90% of the research sample, claimed that their

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
		tive consequences					regular academic activities were hindered from a week to two months during the lockdown time. According to the study results, 70% participants of the survey asserted that their work (of staff) or study (of students) were adversely impacted from nationwide lockdown resulting from the pandemic which in turn affected their morale and social outlook during the time. The universities came forward with psychological support for their staff, and consultation for their students to mitigate their psychological issues and elevate their mental and social morale.
3	Quantitative; Survey	Coping strategies for mitigating the Covid-19 pandemic quarantine psychological	Ensaf Y. Al-momani, Ahmad M. Qablan, Abbas M. Al-momany, Fatin Y. Atrooz 2021	The coping strategies followed by university students to mitigate the COVID-19 quarantine psychological	Jordan	585 university students from Jordan	As the outbreak of the Covid-19 pandemic led to a military declared curfew in Jordan, the university students of the country were affected mentally and socially as they experienced severe hindrances in their lives. The study ran

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
		impacts on university students		impact			Chi-square and correlation tests to analyze the psychological disturbances the students faced during the curfew period and the coping techniques followed to mitigate those. The study first identified some psychological disturbance symptoms among the respondents e.g., anxiety, sleeplessness, depression, short-temper. The study found that female respondents were more exposed to psychological issues than the males were amid the curfew. Furthermore, the study also found significantly positive correlation between students' perceived psychological symptoms and their age and gender. It was also delineated that students' gender and age affected how they planned their coping strategies to mitigate these psychological distresses. The respondents were engaged in studying, sleeping, meditating, house-

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							hold chores, watching TV programs and cooking.
4	Quantitative; Survey	Specific impacts of the Covid-19 pandemic on academics, social isolation and mental health of undergraduate students, and the coping mechanism followed by the university	Rebecca Prowse, Frances Sherratt, Alfonso Abizaid, Robert L. Gabrys, Kim G. C. Hellemans, Zachary R. Patterson, Robyn J. McQuaid 2021	Coping With the COVID-19 Pandemic: Examining Gender Differences in Stress and Mental Health Among University Students	Canada	366 undergraduate students from Carleton University	The uncontrolled spread of the Covid-19 pandemic interfered with the normal motion of the lives of people, while the young students' mental strengths were damaged due to an unprecedented pause to their academic curriculum. The study conducted an online survey and used a Pearson's correlation analysis to find the results fulfilling its primary objectives. It appeared that students' gender was a great factors of the perceived impacts of Covid-19 pandemic of their academic works. While male students reported mostly moderate to no negative impact, female students expressed mostly severely adverse impacts of the pandemic on their academic activities which led them to mental break-down. The study also revealed that social distancing

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							was more difficult for female students than it appeared to male students, while male students reported about greater deterioration of social relationships than female students did. Apparently, female students were in greater extent of stress emerging from the social distancing amid the pandemic. Canadian universities undertook comprehensive counseling programs for their students to deal with the anxiety, stress and depression accumulating from ongoing academic activities during the pandemic, and arrange one-to-one meeting with the students for guiding them plan better academic career and take prudent decisions.
5	Quantitative; Survey	Relationships between students' emotions,	Martha Leticia Gaeta, Laura Gaeta, María del Socorro Rodri-	The Impact of COVID-19 Home Confinement on Mexican University Students:	Mexico	1290 Mexican university students	Though the outbreak of the Covid-19 pandemic has posed many threats to individuals' lives, it also provided students with the opportunities to develop a habit of self-learning

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
		coping strategies, and self-regulated learning in online learning during COVID-19 home confinement	guez 2021	Emotions, Coping Strategies, and Self-Regulated Learning			and to take greater responsibilities. The study was formed among university students of Mexico, and looked into the emotions, coping techniques and self-learning processes of them to interrelate with the context of home quarantine, or isolation. The study used descriptive and inferential statistical approaches to analyze the primary dataset, and ran a SEM analysis for evaluating the assumed relationships. The study revealed that the respondents were filled with mixed emotions that included compassion, gratitude, hope, joy, boredom, anxiety, frustration and fear. However, the positive emotions, i.e., compassion, gratitude, hope, were more prevalent among the students than the negative emotions, i.e., boredom, anxiety, frustration, fear. The study found strong statistical association between students'

No.	Type of Paper	Interest or area	Author(s) and Publishing Year	Title of the Paper	Country	Dataset (Population/ Sample)	Summary of the main findings
							emotions and their coping approaches. Moreover, when students undertook any coping approach, it acted as a mediator between emotion and self-learning process. Universities and teachers played their role to help students understand the pertinence and essentiality of each active coping approach, and facilitate the understanding how these could help them develop self-learning motivation and skills.

Survey Questionnaire

Questionnaire for the University Students in Ulm & Neu-Ulm. (Past Students can also participate)

Thank you for your kind participation in this survey. I am Borhan Uddin from the Master's Program- International Corporate Communication and Media Management at Hochschule Neu-Ulm. As part of my Master's thesis with the topic- **“The side-effects of the Pandemic: The Impacts on the University Students of Ulm & Neu-Ulm.”** under the supervision of Professor Ulrike Reisach.

This survey takes about 3-4 minutes of your valuable time. Of course, all questions will be evaluated anonymously and for this survey only.

If you have any questions, please send me an email at: Borhan.Uddin@student.hnu.de

Thank you again for your time!!

- 1. Do you think the pandemic has significantly influenced the regular education system in Germany?**
 - a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree

- 2. Have you struggled in adapting to the sudden change in the education system (Online Semester) due to the pandemic?**
 - a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree

- 3. Have you felt any type of mental pressure or pressure due to the sudden remote learning procedure during the pandemic?**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree
- 4. Have you received the necessary support like- guidelines, apps, usage instructions, module info, etc. from the university and the faculties for education during the pandemic?**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree
- 5. How did you consider that Online learning hampered the way of obtaining practical knowledge from academics?**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree
- 6. Do you believe that Online learning was equally effective as compared to the pre-pandemic period?**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree

- 7. Analyze the statements- “The faculty members were helpful and empathetic towards the students in the sudden shift to online learning procedure”.**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree
- 8. How do you consider the statements- “The modes, platforms and digital tools used by the universities in digital education were effective and suitable according to the student needs.”**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree
- 9. Evaluate the sentence- “University’s different departments organize several online motivational programs, methods, and practices during the pandemic to relief the stress and better mental health.”**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree
- 10. Consider the statements- “The faculty and also the university tried to arrange and provide financial assists like scholarships, emergency aids, etc. during the pandemic.”**
- a) Strongly Agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly Disagree

11. Did you feel that the academic and administrative processes and activities were hindered and in some troublesome tasks during the pandemic?

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

12. What was your personal best experience during online teaching in the pandemic? Please explain your experience shortly.

.....

13. What was your personal worst experience during online teaching in the pandemic? Please explain your experience shortly.

.....

14. Age

- a) 18-25
- b) 26-35
- c) 36-45
- d) 46-55
- e) 55 and above

15. Gender

- a) Male
- b) Female
- c) Others/ Prefer not to say

16. Profession

- a) Current Student
- b) Ex-Student
- c) Faculty member
- d) Others:

17. Which University is associated with you?

- a) Universität Ulm
- b) Technical Hochschule Ulm
- c) Hochschule Neu-Ulm für angewandte Wissenschaften
- d) Universitäts-Klinikum Ulm

Raw Data Set

Participants SI#	01. Do you think the pandemic has significantly influenced the regular education system in Germany?	02. Have you struggled in adapting to the sudden change in the education system (Online Semester) due to the pandemic?	03. Have you felt any type of mental pressure due to the sudden remote learning procedure during the pandemic?	04. Have you received the necessary support like-guidelines, apps, usage instructions module info, etc. from the university and the faculties for education during the pandemic?	05. How did you consider that Online learning was hampered the way of obtaining practical knowledge from academics?	06. Do you believe that Online learning was equally compared to the pre-pandemic period?	07. Analyze the statements "The faculty members were helpful and empathetic towards the students in the sudden shift to online learning procedure"	08. How do you consider the statements "The modes, platforms and digital tools used by the universities in digital education were effective and suitable according to the student needs."	09. Evaluate the sentence "University departments also tried to arrange and provide financial assists like scholarships emergency aids, etc. during the pandemic."	10. Consider the state-faculty and university processes and were hindered	Please 11. Did you feel that the administrative activities and in some tasks during the pandemic?	12. What was your personal best experience during online teaching in the pandemic? Please explain your experience shortly.	13. What was your personal worst experience during online teaching in the pandemic? Please explain your experience shortly.	14. Age	15. Gender	16. Profession	17. Which University is associated with you?
1	Completely Agree	Completely Agree	Completely Agree	Agree	Completely Agree	Completely Disagree	Agree	Disagree	Agree	Agree	Completely Agree	The course instructors were very helpful and gave the descriptive instruction of the usage of different apps.	The administrative activities and procedure were complex and very confusing.	26-35	Male	Ex-Student	Universität Ulm
2	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	The Modules and exam systems were pretty cool and easy	Course professors were very strict on the usage of their selected apps for courses.	18-25	Male	Current Student	Technische Hochschule Ulm
3	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	The modules and exam systems were pretty cool.	Some professors were rigid and strict on the usage on	18-25	Male	Current Student	Technische Hochschule Ulm

													their preferred apps.				
4	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Teachers were open and easy on using different new apps and tools.	The administrative functionalities were confusing and lengthy.	26-35	Male	Ex-Student	Universität Ulm
5	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	The Professors were helpful.	Apps usage instruction were not sufficient and clear.	26-35	Male	Ex-Student	Technische Hochschule Ulm
6	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Course related apps were very helpful and practical	There was no financial help during lockdown and online semester.	26-35	Male	Ex-Student	Technische Hochschule Ulm
7	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Got financial help from the university which helped me to relief mental stress.	Service employees from International office and exam office were not helpful at all.	18-25	Male	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
8	Agree	Agree	Agree	Completely Disagree	Agree	Disagree	Agree	Disagree	Disagree	Disagree	Agree	International Office employees were outstanding and helpful on the time online semester.	There was financial help from the university.	26-35	Male	Ex-Student	Universität Ulm
9	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	The student Union helped a lot on financial points.	There were not enough motivational activities from the University that can reduce the mental and physical stress.	26-35	Female	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
10	Agree	Agree	Agree	Completely Disagree	Agree	Disagree	Agree	Disagree	Disagree	Disagree	Agree	Several motivational sessions were helpful to relief the stress.	There were no financial help during lockdown and it had negative effect on my studies	18-25	Male	Current Student	Universität Ulm
11	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Courses structure were well designed and special for online semesters	Administrative procedure and service personnel were not helpful	18-25	Female	Current Student	Technische Hochschule Ulm
12	Completely Agree	Completely Agree	Agree	Completely Disagree	Completely Agree	Completely Disagree	Agree	Disagree	Disagree	Disagree	Agree	Course Modules were well structured and helpful.	Lacks of motivational program were vividly identified	26-35	Female	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
13	Agree	Agree	Completely Agree	Completely Disagree	Agree	Disagree	Agree	Disagree	Disagree	Disagree	Agree	The teaching style and systems of the professor were good enough during	Some apps were complex to use and not detailed manual were not given	26-35	Male	Ex-Student	Technische Hochschule Ulm

												online semester					
14	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Course structure and online lecture giving techniques were impressive	The length of lecture and seminar schedule on online was heavy and stressful.	18-25	Male	Current Student	Universität Ulm
15	Agree	Agree	Agree	Completely Disagree	Agree	Disagree	Agree	Disagree	Disagree	Disagree	Agree	The practical use of several apps were fruitful on my job	The module were heavy and exam procedure was completely new and complex also	26-35	Female	Ex-Student	Universität Ulm
16	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	The Modules were easy and best for the online semester.	Some professors use their own favourite apps which were complex and hard to use.	26-35	Male	Ex-Student	Universität Ulm
17	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Completely Agree	Completely Agree	Don't Know	Modules were easy-going aa	Apps were hard to use	36-45	Female	Ex-Student	Universität Ulm
18	Completely Agree	Completely Agree	Completely Agree	Agree	Completely Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Extra time give mentailly of professor.	Exam procedure were confusing	26-35	Male	Ex-Student	Universität Ulm
19	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Professors were helpful/ Apps were easy going/ Clear instruction were provided/ Modules were easy-going/ New apps with clean description/ The class information and timing were organised/ Extra time given mentality of professors were outstanding. (You can choose one of those sentences)	Apps were hard to use/ Modules were heavy and complex/ Professors used complex apps/ Administration procedure were complex/ The online version of e-books were not available and easy to reach/ Exam procedure were confusing.	46-55	Female	Ex-Student	Universität Ulm
20	Completely Agree	Completely Agree	Completely Agree	Agree	Disagree	Disagree	Agree	Agree	Disagree	Agree	Completely Disagree	Vommunication barrier got less between me and the teacher as everyone was getting equally chance to share and gather knowledge.	Sometimes faced network problems from both my end and teacher end. Moreover, distance learning became difficult and frustrating as	18-25	Female	Ex-Student	TUM

													my classmates and friends were not with me.				
21	Completely Agree	Completely Agree	Agree	Agree	Completely Agree	Disagree	Agree	Completely Disagree	Completely Agree	Agree	Agree		Professors were helpful	26-35	Male	Ex-Student	Technische Hochschule Ulm
22	Completely Agree	Completely Agree	Completely Agree	Agree	Completely Agree	Completely Disagree	Agree	Completely Disagree	Agree	Agree	Agree	Extra time given mentality of professors were outstanding.	Exam procedure were confusing.	26-35	Male	Ex-Student	Universität Ulm
23	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	New apps with clear and detail description	The Online version of e-books were not available and easy to access	26-35	Male	Current Student	Universität Ulm
24	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Agree	Completely Disagree	Agree	Disagree	Disagree	Disagree	Agree	Extra time provided by Professors are useful	Administration procedure were complex	26-35	Male	Current Student	Technische Hochschule Ulm
25	Completely Agree	Agree	Completely Agree	Agree	Agree	Completely Agree	Agree	Completely Agree	Agree	Completely Agree	Completely Agree	Opportunity to distance learning	Loosing chance to share practical knowledge as well as struggling to concentrate on the topic.	26-35	Male	Current Student	Technische Universität Darmstadt
26	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Agree	Professors were helpful and providing organized materials	Apps were hard to use	18-25	Male	Ex-Student	Technische Hochschule Ulm
27	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Disagree	Agree	Agree	Completely Agree	Class formation and timing were organised	Exam procedure were confusing and hard to keep concentration long time to the screen	26-35	Male	Current Student	Universität Ulm
28	Completely Agree	Completely Agree	Agree	Disagree	Agree	Completely Disagree	Disagree	Disagree	Disagree	Agree	Agree	New apps with clean description	Modules were heavy and complex	18-25	Male	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
29	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Modules were easy going and professors were helpful	Some apps were not clear enough to understand and were complex to use	26-35	Male	Current Student	Technische Hochschule Ulm
30	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Agree	Completely Disagree	Agree	Disagree	Disagree	Disagree	Agree	The class formation and timing were organised.	Some professors used their own prefferable apps which were hard and complex to use.	26-35	Male	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
31	Completely Agree	Agree	Completely Agree	Disagree	Agree	Disagree	Disagree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Lectures were video recorded	Some important practical	26-35	Male	Current Student	Universität Ulm

	Agree		Agree					Disagree	Disagree	Disagree	Agree	and could be reached any time	courses took place online	35		Student	
32	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Extra time giving mentality of the professor were outstanding	Some apps that used were not with detailed info and instructions	26-35	Male	Ex-Student	Technische Hochschule Ulm
33	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Professors were helping in nature and were easy going. The class formation and timing were organized properly.	Apps were sometimes hard to use and complex subject and points were not easy to grasp for students.	18-25	Male	Ex-Student	Universität Ulm
34	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Agree	Disagree	Agree	Disagree	Disagree	Disagree	Agree	Modules were easy to understand. New method of study was explained properly.	The online version of e-books were not available and easy to reach. Server problems were also there.	26-35	Male	Current Student	Technische Hochschule Ulm
35	Disagree	Completely Disagree	Completely Disagree	Completely Agree	Agree	Agree	Completely Agree	Completely Agree	Agree	Completely Disagree	Completely Agree	We could connect from different part of the city and do projects together and seminars without going to the university. The same for most of the exams	We needed to do some embarrassing random mixed rooms in zoom where nobody would like to turn the camera and speak	18-25	Male	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
36	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Modules were easy-going and nicely organized for the online semester.	Some apps with complex usability and not cleared instructed by Professors or course Instrstructors.	26-35	Male	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
37	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Professors were helpful/modules were easy-going/New apps with clear description	Apps were had to use/ Modules were heavy and complex.	26-35	Male	Current Student	Technische Hochschule Ulm
38	Agree	Completely Agree	Completely Agree	Completely Disagree	Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Completely Agree	New apps with clean descriptions/ Apps were easy going/ Extra time given the mentality of professors were outstanding.	Administration producers were complex/ The online version of e-books were not available and easy to reach.	26-35	Female	Current Student	Universität Ulm

39	Agree	Agree	Agree	Completely Agree	Disagree	Disagree	Agree	Completely Agree	Completely Agree	Completely Disagree	Don't Know	The class formation and timing were organization/ New apps with clean descriptions/ Modules were easy-going /	Apps were hard to use/ Professors used complex apps/ Administration producers were heavy and complex	18-25	Male	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
40	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Disagree	Agree	Completely Agree	Agree	Completely Agree	Completely Agree	A lot of time was saved for commute	Having concentration in class for long period of time was difficult	26-35	Female	Ex-Student	Universitätsklinikum Ulm
41	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Agree	Completely Disagree	Disagree	Completely Disagree	Completely Agree	Completely Agree	Completely Agree	Routine was more organized	Online connectivity issues	18-25	Male	Current Student	Universität Ulm
42	Agree	Agree	Completely Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Disagree	Agree			26-35	Female	Ex-Student	Universität Ulm
43	Don't Know	Disagree	Completely Disagree	Disagree	Disagree	Completely Agree	Completely Disagree	Agree	Completely Disagree	Completely Disagree	Disagree	Could explore various trends of online education and also realized that physical presence is not necessary to attain lessons.	Unstable internet connection issues at times.	26-35	Male	Ex-Student	Universität Ulm
44	Agree	Agree	Agree	Completely Disagree	Agree	Completely Disagree	Completely Disagree	Agree	Agree	Completely Disagree	Completely Disagree			18-25	Male	Current Student	UBC
45	Agree	Don't Know	Disagree	Completely Agree	Don't Know	Disagree	Completely Agree	Agree	Completely Agree	Completely Agree	Completely Agree			26-35	Female	Ex-Student	Universität Ulm
46	Completely Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Disagree	Completely Disagree	Disagree	Agree	Disagree			18-25	Male	Current Student	
47	Agree	Disagree	Agree	Completely Disagree	Disagree	Completely Agree	Completely Agree	Disagree	Agree	Disagree	Agree	Professor replied individual question after the class.	Sometimes difficult to understand in the digital board.	26-35	Male	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
48	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	The class formation and timings were organized	Modules were heavy and complex	26-35	Male	Current Student	Universität Ulm
49	Completely Agree	Agree	Agree	Completely Agree	Completely Agree	Completely Disagree	Completely Agree	Agree	Agree	Agree	Agree			26-35	Male	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
50	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Disagree	Disagree	Completely Disagree	New applications with clear descriptions	Exam procedures were confusing	26-35	Male	Ex-Student	Technische Hochschule Ulm

51	Completely Agree	Agree	Agree	Completely Agree	Agree	Disagree	Completely Agree	Agree	Agree	Agree	Agree	Online instruction provided particular benefits throughout the pandemic. No matter where they were located, teachers could communicate with a wider spectrum of students. By providing interactive classes and interesting materials, digital tools and resources improved learning. Personalized learning was possible thanks to the schedule flexibility and accessibility. However, concerns with connectivity and a lack of in-person engagement emerged. Overall, the use of online teaching increased educational access and offered chances for innovation.	During the pandemic, online education presented obstacles. The lack of face-to-face interaction made determining understanding difficult. Lessons were disrupted due to technical challenges. It was difficult to motivate students and create collaboration. Disparities in access exacerbated educational inequality. Increased screen time had an impact on happiness. Despite these challenges, teachers remained resilient and adjusted their ways.	18-25	Male	Current Student	Hochschule Stralsund
52	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Professors were helpful	Apps were hard to execute	26-35	Male	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
53	Don't Know	Agree	Agree	Don't Know	Don't Know	Don't Know	Don't Know	Don't Know	Don't Know	Don't Know	Don't Know	Commitment from some teachers to integrate their teaching styles to online learning.	The inability to collaborate effectively.	18-25	Male	Student at Luther College, Decorah IA, USA	Luther College, Decorah IA, USA
54	Agree	Agree	Agree	Disagree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Physical travel was not needed	Inability to judge topics clearly and familiarize with exam type implementations	18-25	Male	Current Student	Universität Ulm
55	Completely	Agree	Completely	Agree	Agree	Disagree	Completely	Agree	Disagree	Agree	Completely	It reduce the time wasted	You often get deviated and	18-	Male	Current	Hochschule Nieder-

	Agree		Disagree				Agree				Agree	over transportation . I could attend the from anywhere at my convenience	shift to other apps	25		Student	rhein
56	Agree	Agree	Completely Agree	Agree	Completely Agree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	It was helpful	When unable to connect administrative people	26-35	Female	Current Student	
57	Agree	Agree	Agree	Agree	Disagree	Completely Disagree	Disagree	Completely Disagree	Agree	Completely Disagree	Completely Agree	No good experience.	No physical interactions with classmates.	18-25	Male	Current Student	Hochschule Augsburg
58	Completely Disagree	Disagree	Completely Disagree	Disagree	Completely Disagree	Disagree	Completely Disagree	Disagree	Completely Disagree	Disagree	Completely Disagree	Exams were open book	Poor communication with the teacher	18-25	Male	Current Student	Hochschule Hof
59	Completely Agree	Agree	Completely Agree	Agree	Completely Agree	Agree	Completely Agree	Agree	Completely Agree	Agree	Completely Agree	The class formation and timing were organized	Apps were hard to use	18-25	Male	Ex-Student	Universität Ulm
60	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Completely Agree	Completely Disagree	Disagree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Professors were helpful	Apps were hard to use	26-35	Female	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
61	Disagree	Completely Agree	Agree	Completely Agree	Don't Know	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	I remember when I still was in my country and we had online classes, my internet had some issues for which i couldn't submit my assignments in time My professor was really understanding enough to let me mail it to them as exception.	Time difference was my worst experience during online classes added with internet issues.	18-25	Male	Current Student	Tokyo International University
62	Completely Agree	Agree	Completely Agree	Completely Disagree	Completely Agree	Disagree	Completely Disagree	Completely Disagree	Completely Disagree	Agree	Completely Agree	I could relax at home more	The unavailability of faculties and lack of communication from my thesis supervisor	26-35	Male	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
63	Agree	Agree	Completely Agree	Disagree	Completely Agree	Agree	Disagree	Completely Disagree	Completely Disagree	Completely Disagree	Completely Agree	Not meeting the unfriendly classmates and professors	Not having mensa food	26-35	Male	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
64	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Disagree	Professors were helpful/ Apps were easy going/ Clear instruction were provided/	Apps were hard to use/ Modules were heavy and complex/ Professors used	26-35	Male	Ex-Student	Universität Ulm

												Modules were easy-going/ New apps with clean description/ The class formation and timing were organised/ Extra time given mentality of professors were outstanding. (You can choose one of those sentenc- es)	complex apps/ Administra- tion procedure were com- plex/ The online version of e- books were not available and easy to reach/ Exam proce- dure were confusing.				
65	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Extra time given mentality of professors were outstanding	The online version of e- books were not available and easy to reach/	26- 35	Male	Ex- Student	Universität Ulm
66	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Completely Agree	Extra time given mentality of professors were outstanding	The online version of e- books were not available and easy to reach	26- 35	Male	Ex- Student	Universität Ulm
67	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Agree	Completely Disagree	Agree	Completely Disagree	Agree	Agree	Completely Agree	professor were helpful	apps were hard to use	26- 35	Male	Current Student	hs anhält
68	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Completely Agree	Completely Disagree	Disagree	Completely Disagree	Agree	Agree	Agree	apps were easy going	modules were heavy and complex	26- 35	Male	Current Student	Technische Hochschule Ulm
69	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Agree	Agree	Completely Agree	Completely Agree	Don't Know	Disagree	Completely Agree	Online classes was organized properly, professors was helpful	It took long time to give clear instruction on how the exams will be conducted. Even they changed their decisions several times. On top of that they decided to take exams on physical presence where many of the students could not partici- pate.	26- 35	Male	Current Student	Universität Ulm
70	Disagree	Disagree	Disagree	Completely Agree	Disagree	Completely Agree	Completely Agree	Agree	Completely Agree	Don't Know	Completely Disagree	Moodle recordings	None	26- 35	Male	Ex- Student	Universität Ulm
71	Agree	Disagree	Completely Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree			18- 25	Male	Current Student	Universität Ulm

72	Disagree	Completely Disagree	Disagree	Completely Agree	Completely Disagree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Don't Know	Completely Disagree			18-25	Male	Current Student	Universität Ulm
73	Completely Agree	Completely Agree	Disagree	Disagree	Completely Agree	Disagree	Completely Disagree	Completely Disagree	Agree	Agree	Completely Agree	The proper functioning and effectiveness of online learning platform	Sometimes i personally felt the lack of feeling that you are part of a group	18-25	Male	Current Student	Universität Ulm
74	Completely Agree	Completely Agree	Completely Agree	Agree	Disagree	Disagree	Disagree	Agree	Disagree	Completely Disagree	Completely Agree	I can watch the classes when I have time	I couldn't come to Germany in my first semester so I couldn't meet anyone and I couldn't do the exams	26-35	Male	Current Student	Universität Ulm
75	Don't Know	Disagree	Disagree	Agree	Disagree	Completely Disagree	Agree	Completely Agree	Agree	Disagree	Agree			18-25	Male	Current Student	Universität Ulm
76	Completely Agree	Completely Agree	Completely Agree	Agree	Completely Agree	Disagree	Disagree	Agree	Agree	Completely Agree	Completely Agree	The class formation and timing were organised	The online version of e-books were not available and easy to reach	26-35	Male	Ex-Student	Universitätsklinikum Ulm
77	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Professors were helpful	Modules were heavy and complex	18-25	Female	Current Student	Universität Ulm
78	Completely Agree	Agree	Completely Agree	Agree	Completely Agree	Disagree	Agree	Agree	Completely Agree	Agree	Completely Agree	New apps with clean description	Exam procedure were confusing	18-25	Male	Current Student	Technische Hochschule Ulm
79	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Disagree	Agree	Agree	Agree	Agree	Completely Agree	Extra time given mentality of professors were outstanding	Professors used complex apps	26-35	Female	Ex-Student	Universität Ulm
80	Agree	Agree	Completely Agree	Completely Agree	Agree	Completely Disagree	Agree	Completely Agree	Agree	Agree	Completely Agree	Apps were easy going	Modules were heavy and complex	18-25	Male	Current Student	Universitätsklinikum Ulm
81	Agree	Completely Agree	Completely Agree	Agree	Agree	Disagree	Agree	Agree	Completely Agree	Completely Agree	Agree	Modules were easy-going	Administration procedure were complex	26-35	Female	Ex-Student	Universität Ulm
82	Agree	Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Disagree	Agree	Agree	Agree	Agree	New apps with clean description	Modules were heavy and complex	26-35	Male	Ex-Student	Technische Hochschule Ulm
83	Agree	Agree	Agree	Agree	Agree	Completely Disagree	Agree	Agree	Agree	Agree	Completely Agree	Extra time given mentality of professors were outstanding	The online version of e-books were not available and easy to reach	18-25	Female	Current Student	Technische Hochschule Ulm
84	Completely Agree	Completely Agree	Completely Agree	Agree	Agree	Disagree	Agree	Completely Agree	Completely Agree	Agree	Agree	Modules were easy-going	Apps were hard to use	26-35	Female	Ex-Student	Technische Hochschule Ulm
85	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Disagree	Completely Agree	Completely Agree	Completely Agree	Agree	Agree	Clear instruction were provided	Professors used complex apps	18-25	Male	Current Student	Universität Ulm

86	Completely Agree	Agree	Completely Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Agree	Completely Agree	Agree	Agree	The class formation and timing were organised	The online version of e-books were not available and easy to reach	26-35	Female	Ex-Student	Hochschule Neu-Ulm für angewandte Wissenschaften
87	Completely Agree	Agree	Agree	Completely Agree	Agree	Disagree	Agree	Agree	Completely Agree	Completely Agree	Agree	Apps were easy going	Exam procedure were confusing	26-35	Female	Ex-Student	Technische Hochschule Ulm
88	Agree	Agree	Completely Agree	Completely Agree	Agree	Completely Disagree	Agree	Completely Agree	Agree	Completely Agree	Completely Agree	New apps with clean description	Administration procedure were complex	18-25	Female	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
89	Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Modules were easy-going	The online version of e-books were not available and easy to reach	26-35	Female	Ex-Student	Universität Ulm
90	Agree	Agree	Agree	Agree	Agree	Disagree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Extra time given mentality of professors were outstanding	Administration procedure were complex	26-35	Male	Ex-Student	Technische Hochschule Ulm
91	Completely Agree	Completely Agree	Agree	Agree	Completely Agree	Completely Disagree	Agree	Agree	Completely Agree	Completely Agree	Agree	Clear instruction were provided	Apps were hard to use	18-25	Female	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
92	Completely Agree	Agree	Agree	Completely Agree	Completely Agree	Disagree	Agree	Agree	Agree	Completely Agree	Agree	Extra time given mentality of professors were outstanding	Administration procedure were complex	18-25	Male	Current Student	Hochschule Neu-Ulm für angewandte Wissenschaften
93	Agree	Completely Agree	Completely Agree	Completely Agree	Agree	Completely Disagree	Agree	Agree	Agree	Agree	Agree	Apps were easy going	Modules were heavy and complex	26-35	Male	Ex-Student	Universitätsklinikum Ulm
94	Completely Agree	Completely Agree	Completely Agree	Agree	Agree	Disagree	Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Modules were easy-going	Professors used complex apps	26-35	Male	Ex-Student	Technische Hochschule Ulm
95	Agree	Completely Agree	Agree	Agree	Agree	Disagree	Completely Agree	Agree	Completely Agree	Completely Agree	Completely Agree	New apps with clean description	Administration procedure were complex	18-25	Female	Current Student	Universität Ulm
96	Agree	Agree	Agree	Completely Agree	Completely Agree	Disagree	Completely Agree	Agree	Agree	Agree	Completely Agree	The class formation and timing were organised	Administration procedure were complex	26-35	Female	Ex-Student	
97	Completely Agree	Agree	Agree	Completely Agree	Completely Agree	Disagree	Agree	Agree	Agree	Completely Agree	Completely Agree	Professors were helpful	Administration procedure were complex	26-35	Female	Ex-Student	Universität Ulm
98	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Professors were helpful	The online version of e-books were not available and easy to reach	18-25	Female	Current Student	Universitätsklinikum Ulm
99	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Completely Agree	Agree	Agree	Agree	Agree	Agree	Professors were helpful	Apps were hard to use	26-	Male	Ex-	Universitätsklinikum

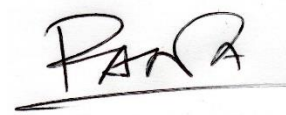
	Agree	Agree	Agree	Agree	Agree	Disagree								35		Student	Ulm
100	Agree	Completely Agree	Agree	Completely Agree	Agree	Disagree	Agree	Completely Agree	Agree	Completely Agree	Agree	Modules were easy-going	Administration procedure were complex	18- 25	Male	Current Student	Universität Ulm

Declaration

I hereby confirm that the master thesis is my own work and that it has not been used for other examination purposes; I have named all the sources and auxiliary materials used, and I have marked appropriately quotations used verbatim or which I have given the gist of. I tolerate the check of using anti-plagiarism software.

Ulm, 05.07.2023

Place, Date



Signature