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Distance Education in high schools in Sweden during Covid-19: Analysis of students' perceptions

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Abstract

Sweden's high school students have no prior experience of compelled distance education during a pandemic and it is unusual in Sweden with distance education in high school. In fact, after the Swedish government announced on March 17, 2020, that distance education was recommended in high schools from March 18, 2020, the implementation from traditional face-to-face education to distance education happened over one-day notification for almost all high school students. This study analyzes students' experience on distance education during the first wave of the Covid-19 crisis in the spring 2020 and evaluates to which extent crisis response can be implemented in crisis distance education.

The author conducted a web survey and received 51 responses from high school students. The result showed that 75 percent of the students thought that the school had not prepared them for distance education. The result also showed that 45 percent of the students did not feel prepared for the fast transition to distance education. Yet, the preparation for using digital tools was good as 75 percent of the students have used digital tools often before in their education. The study also showed that in crisis distance education, you can implement five phases in crisis management (engage, explore, explain, execute, and evaluate) for example by informing and explaining what has been planned to overcome a crisis and be able to continue to provide high-quality education for high school students.

The analysis had a focus on procedural, logistics, and pedagogical aspects (supported by technology). Social factors and psychological factors are important aspects to investigate further in future research.

Keywords: Covid-19, distance education, high schools, crisis.

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1. Introduction

1.1 Background

At the end of 2019, it was confirmed that a new coronavirus that can infect humans has been identified in the city of Wuhan in China, (Folkhälsomyndigheten, 2020a). The WHO classified it as a pandemic on March 11, 2020, (World Health Organization, 2020).

During week 11 (9-15 march, 2020), the number of reported cases of covid-19 in Sweden exceeded 1000 cases and the number of Covid-19 cases in the world approached 200.000, (Folkhälsomyndigheten, 2020b).

On 17 March 2020, the recommendation from the Public Health Authority was announced by the Swedish government that higher education institutions and high schools were recommended to introduce distance education from 18 March 2020, (Atallah, 2020). Most governments around the world had temporarily closed educational institutions. On March 18, 124 countries had closed their schools, (UNESCO, 2020). This transition from traditional face-to-face education to distance education happened from one day to another and had one single goal. To try to limit the spread of the infection, Covid-19.

Much research has been done on distance education for students before Covid-19, but since the distance education that was introduced in Sweden for high school students during the pandemic of Covid-19 was in very rapid forms, it cannot completely be comparable to regular distance education for high school students. A crucial limitation in most studies is to compare traditional distance education to crisis distance education as it is the same thing, failing to recognize that the pandemic Covid-19, is an essential variable, (Al Lily et al., 2020 p.1). Crisis distance education differs from traditional distance education being suddenly, unready, and compelling.

Sweden's high school students have no prior experience of compelled distance education during a pandemic and it is unusual in Sweden with distance education in high school. Bergdahl and Nouri, (2020) conducted a study in Sweden focusing on the teacher's experiences. Nathaniel and Van der Heyden (2020) framework on crisis management, is here applied to crisis response management at high schools in Sweden, this study analyzes students' experience on distance education during the Covid-19 crisis in the spring 2020 and evaluates to which extent the five steps in their framework could be implemented to the crisis. This study will be focusing on procedural, logistics, and pedagogy factors (supported by technologies).

This study comes a few months after the distance education was completed and returned to traditional education. Crisis distance education in high school lasted from March 18 to June 19, 2020, (Folkhälsomyndigheten, 2020c). Yet the Covid-19 pandemic is still an ongoing threat to the world and spreads worldwide. 40 472 505 cases of Covid-19 in the world have been reported 20 October 2020, including 1 119 283 deaths, (European Centre for Disease Prevention and Control, 2020). In Sweden, 5922 deaths and 106380 cases of Covid-19 have been reported on 20 October 2020.

In December 2020, high schools in Sweden needed to switch to distance education quickly again. Results of this study will be of use when implementing distance education in high school during a crisis. After researchers have studied past events managers can develop agile strategies to cope with crises in the future (Faulkner, 2001).

1.2 Purpose and scope

The purpose of this study is to help decision-makers at educational institutions (high school level) to be aware of how much preparation and how much measures they need to work with beforehand, to be prepared for crisis change whenever that may happen.

As noted in 1.1, a recent study has looked on this from teachers' perspective. This focus of the present study is to analyze the students' perception.

1.3 Target groups

The results of this thesis will benefit high schools in implementing crisis distance education. It can also benefit to some extent elementary schools. Other organizations, such as universities, or executive education can also benefit from the results if implementing digitized tools in an educational organization during a crisis.

1.4 Research questions of this study

- *How did high school students experience crisis distance education?*

This question is asked in this study to gain knowledge about how the students experienced crisis distance education.

- *To which extent can educational institutions implement crisis response steps in crisis distance education?*

This question is asked to gain knowledge for the future if schools need to switch to crisis distance education again. It will be answered using Nathaniel and Van der Heyden's (2020) framework's five steps in crisis management.

2. Literature Review

The literature review has two sections: Covid-19 Crisis management (with sub-sections: Crisis management, crisis response to Covid-19 and framework for crisis management) and Crisis distance education in high schools (with subsections: Dimensions in crisis distance education and previous crisis responses in schools).

2.1 Covid-19 Crisis management

The first subsection, crisis management, deal with crisis definition and crisis management in general. The second subsection, crisis response to Covid-19, is about the crisis response to Covid-19. The third subsection, framework for crisis management, presents the framework that will be used for this study.

2.1.1 Crisis management

The pandemic Covid-19 is an ongoing crisis in the world that is affecting people all over the world, but what is a crisis? Many definitions of a crisis have been offered.

Pearson and Clair (1998 p.60), define an organizational crisis is a low-probability, high-impact event that threatens the viability of the organization. Coombs (2007 p.164), defines a crisis as the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously influence an organization's performance and generate negative outcomes. Heath and Sheen (2005 p.2) mean that a crisis is an event that often happens without warning and the difficulties that arise from the crisis are often greater than the available resources. According to Tanriogen and Savci (2011 p.1), any event that hinders the teaching and training process at schools is defined as a crisis. Yet it is possible to experience an effective and productive teaching process when the whole staff is aware of the possible crisis and by effective management of crisis that may occur at schools.

“Why plan for something bad if it may not occur?”, (Spillan and Crandall, 2002 p. 25).

Crisis management seeks to help organizations deal with crises that are catastrophic or unfortunate events, (Spillan and Crandall, 2002 p.18). Good management can avoid crises to some degree, but must equally incorporate strategies for coping with the unexpected event over which the organization has little control, (Faulkner, 2001 p.137).

A crisis can have a devastating impact on entire school populations, (Olinger Steeves et al., 2017 p.563). In preparation for meeting the demands of a school crisis, basic training must be offered to all adults in school, (Heath and Sheen, 2005 p.3). It is important to plan and prepare a school crisis plan and there are three interventions that Heath and Sheen (2005 p.3) point out in crisis planning:

- *Primary intervention*, meaning to lessen the likelihood of a crisis and reduce the extent or magnitude of the crisis.
- *Secondary intervention*, planning for the acute phase of the crisis. Help with the immediate demands of the crisis. Often the focus lays in this section in school crisis plans and forgets that the first intervention is equally important.
- *The tertiary invention* is after the crisis. The follow-up and support for the affected in the crisis.

2.1.2 Crisis response to Covid-19

To manage the crisis of Covid-19, the crisis response in the world to Covid-19 was massive and aggressive to reduce the spread of Covid-19. It was one of the most unpredictable and transformative pandemics in record history and has massively changed the way we live and work (Whillans et al., 2020). Andersen et al. (2020) reviewed the response Sweden and the world had to Covid-19. Most governments in the world implemented social distancing laws that restricted activities that involved direct physical contact to reduce the spread of Covid-19, (Andersen et al., 2020 p.2). Lockdowns of entire countries, curfews, restaurants, and shopping mall closure were all measures taken by many countries to reduce the spread of Covid-19. Yet the severity of these restrictions has varied across countries. Compared to almost every other Western country, Sweden took a much lighter approach (Andersen et al., 2020 p.2). The population was encouraged to stay home if feeling unwell, have 1-2 m social distance, wash hands frequently, and limit social interaction if possible. Compared to Sweden that only shut down high schools and higher education institutions, many other countries had a total shut down of all schools where even preschools shut down (Spires, 2020).

2.1.3 Framework for crisis management

As a theoretical framework for this study, Nathaniel and Van der Heyden (2020) was chosen. In their framework, they sum up lessons from previous crisis response and uses Covid-19 to illustrate and put them in a context that concerns us all today. A crisis is not a time for learning or reinventing things that should already be known, but these known lessons are regularly ignored (Nathaniel and Van der Heyden, 2020, p.2). Not learning from the past or the present can be very costly, and A Phased Framework for Crisis Management is presented by Nathaniel and Van der Heyden (2020 p.8); see Figure 1 and the following explanations.

- *Engage* people early and communicate the method that will be followed to conquer the crisis, (Nathaniel and Van der Heyden, 2020 p.3). Given the uncertainty in times of crisis, explain the process that will be followed to manage the crisis. This reassures people that the leadership has a method, and it aligns people and reduces the odds of dysfunctional behaviors. Have memory and look for patterns. According to Nathaniel and Van der Heyden (2020 p.2), it is rare that crises are completely new and there are more similar than you might imagine.
- *Explore* the crisis and how to fight it, (Nathaniel and Van der Heyden, 2020 p.3). There is rarely one optimal approach in a crisis. Most should fight the crisis; another team should already be looking ahead at the exit and post-crisis. Important is to divide the team into two. One major team should be dedicated fully to fight the crisis. The other team should already be focusing on preparing for the next moves and searching for options that will get us out of the crisis and return us to normal.
- *Explain* your purpose with one or multiple scenarios that will work, (Nathaniel and Van der Heyden, 2020 p.5). The key is to communicate the purpose, with one clear scenario that will work or several alternatives that together should prove to be a good toolkit for managing the crisis.

- *Execute* what has been decided and indicate that the battle has started (Nathanial and Van der Heyden, 2020 p.5). Remind stakeholders of your purpose and the results to be expected. Leadership will remind stakeholders of what was decided, what victory looks like and what results can be expected, and how these will be achieved.
- *Evaluate* and learn. Never let a good crisis go to waste. Adapt to avoid a repeat of the crisis or a similar one (Nathanial and Van der Heyden, 2020 p.7). It is not sufficient to learn, one also must adapt so that lessons are truly integrated resulting in improved readiness to manage a crisis that will share many patterns with earlier crises.

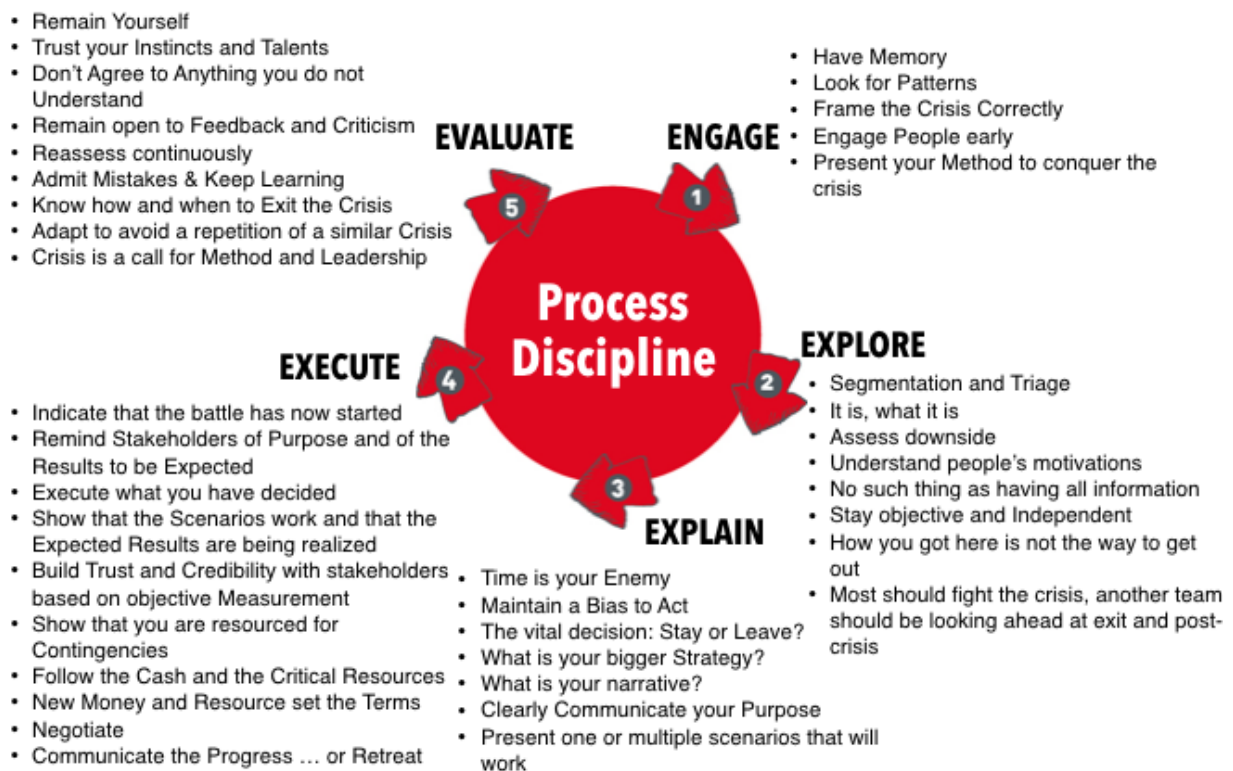


Figure 1 A Phased Framework for Crisis Management by Nathanial and Van der Heyden (2020 p.8)

2.2 Crisis distance education in high schools

From correspondence through postal service to the wide variety of tools available, distance education has grown fast for many years as technology is constantly evolving, (Moore et al., 2011 p.129). Distance education is a computer-based teaching method where students and teachers interact via various digital tools instead of face-to-face interaction which is standard in traditional classroom teaching. According to Moore (2011. p.128), it is important to know how the learning environment is used, and the influences of the tools and techniques that distinguish the differences in learning outcomes. Bergdahl and Nouri (2020) study is similar study to this study but focusing on the teacher's experiences, exploring the transition from traditional teaching into distance teaching in Swedish high schools compelled by Covid-19. They used six Facebook groups used by teachers to collect relevant respondents. Results showed that school's preparedness was mainly related to technical aspects and that teachers lacked the pedagogical strategies needed (Bergdahl and Nouri, 2020, p. 19).

2.2.1 Dimensions in crisis distance education

The crisis distance education that was implemented from one day to another during Covid-19 in high schools cannot completely be comparable to regular distance education. CDE (crisis distance education) has an essential variable, Covid-19. It differs from traditional distance education being suddenly, unready, and force-fully implemented (Al Lily et al., 2020 p.1).

Al Lily et al.'s (2020 p.1) article is about the crisis of distance education during Covid-19 with a focus on Arab culture. The article builds on a conceptual framework, addressing the question: What are the ramifications of implementing distance education amid coronaviruses? They created a framework (Figure 2) for crisis distance education by viewing crisis distance education through sociologic lenses using interviews, looking at social media posts, and observe crisis distance, education classes (Al Lily et al., 2020, p.9).

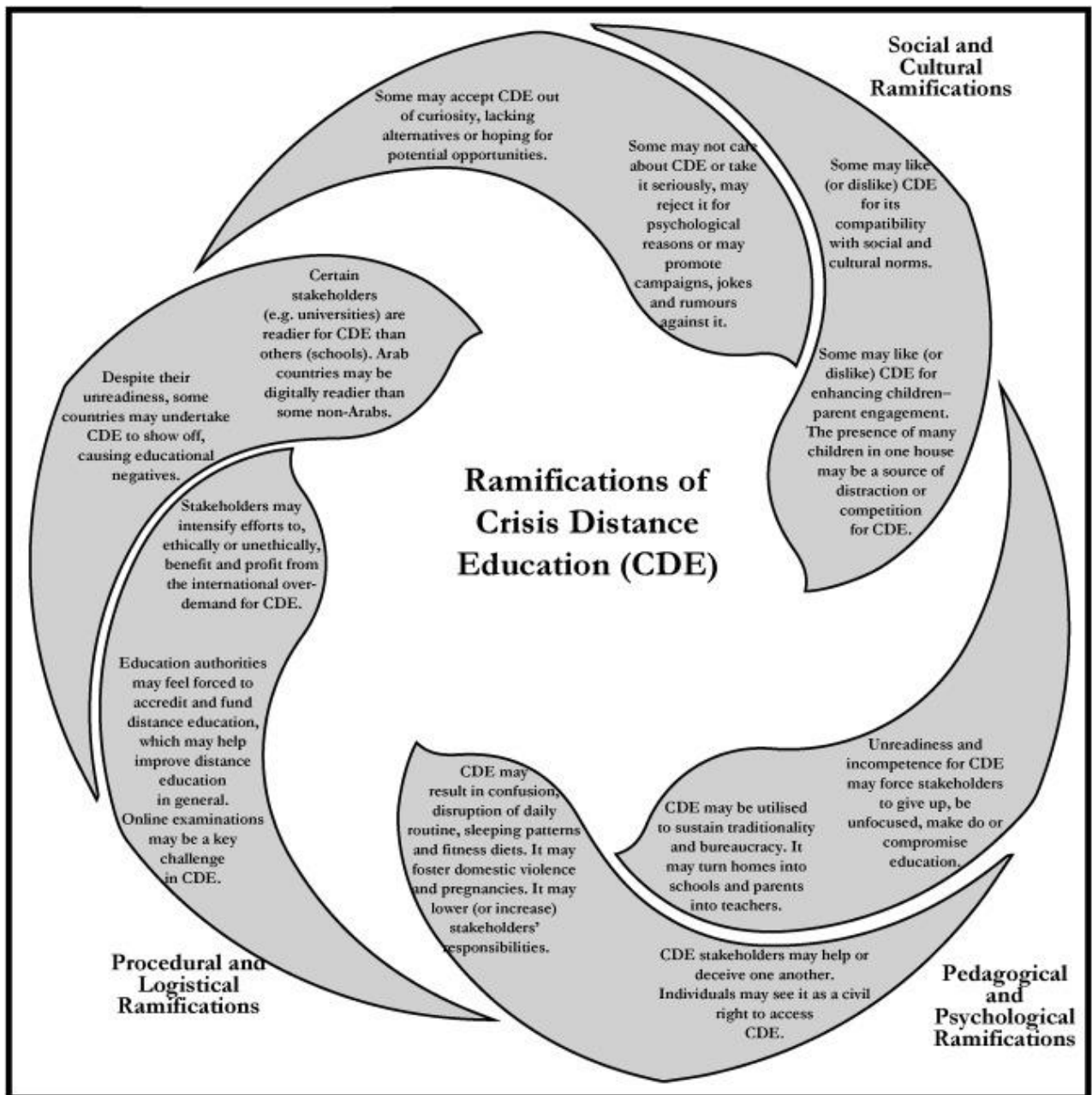


Figure 2: Conceptual framework for crisis-driven distance education by Al Lily et al., (2020 p.9)

There are many topics, aspects, and factors to study in crisis distance education. This study will focus on procedural, logistics, and pedagogical aspects (supported by technology).

2.2.2 Previous crisis responses in schools

A major school crisis can impact student academic performance, (Werner, 2014 p.2).

Werner (2014 p.2) did a study that explored the Missouri school counselor's perception of school crisis preparedness and crisis training experiences using a web-based survey in the study. Missouri DESE provided a list of 2,735 public school counselors and then a random sample of every fourth counselor was used to obtain 685 potential participants. There was no email for 31 respondents, 55 email addresses were returned as undeliverable, and one person requested to be removed from the study. Leaving 598 Missouri school counselors receiving an invitation to participate (Werner, 2014, p.9). 124 participants answered the survey (Werner, 2014 p. 14). The results indicated that the more involved school counselors are in the crisis planning process, the more prepared they feel, (Werner, 2014 p.2).

Any event that hinders the teaching and training process at schools is defined as a crisis, (Tanriogen and Savci, 2011 p.1).

Tanriogen and Savci (2011 p.1) used a web survey to study the perceptions of high school teachers related to the effective management of the crisis they came across in their school. The respondents were 310 randomly chosen teachers working in public high schools during the 2007-2008 Academic Year. The authors do not provide the number of respondents or how many did not respond. The results showed that the most seen crisis in schools is violence towards a student by another student, (Tanriogen and Savci, 2011 p.1). The results also showed that the crises observed at schools are managed partially appropriately according to the academic management strategies. Tanriogen and Savci (2011 p.1) recommended obligatory courses entitled as crisis management for teachers and managerial staff should be given by specialists.

*In 2014, Nigeria's primary and secondary schools had a long period of delay of the resumption to school, fearing the spread of **Ebola** virus disease (EVD), (Olalekan and Adeola, 2015 p.457).*

Olalekan and Adeola (2015 p.457) studied the preparedness of schools in Nigeria toward Ebola prevention and control within 1 month of resumption of schools, using semi-structured surveys. They used a formula for the calculation of sample size for population and 72 schools was calculated, and this was increased to 80 schools to account for nonresponse, (Olalekan and Adeola, p.453). 76 schools were a part of the study, but the authors do not provide the number of respondents or how many didn't respond. Olalekan and Adeola (2015 p.457) concluded that the persistent call for postponement of school resumption might have been due to the unpreparedness of many schools to meet Ebola prevention and control guidelines. According to Olalekan and Adeola (2015 p.457) the schools needed to take more proactive and sustainable measures toward effective control of Ebola, the ongoing epidemic, and prevention of future occurrences.

Some teachers felt frustrated while some teachers found it to be an interesting discovery to use ICT in education, (Fox, 2007 p.319).

In 2003, SARS (Severe Acute Respiratory Syndrome) spread rapidly from China to many cities across the world. Resulting in over 8000 cases of infections and over 800 deaths worldwide, (World Health Organization, 2003). In Hong Kong, the government put in measures to reduce the spread of the virus and one was to close all 1302 schools and universities in Hong Kong, (Fox, 2007 p.319). The closing of the schools happened suddenly and 1 million children stayed at home and 50,600 teachers were faced with the challenge of using digital technology to provide an education for the students at distance, (Fox, 2007 p.319).

Fox (2007 p.319) studied the teachers' perspectives in digital technology faced by Hong Kong educators during the SARS pandemic and the school shifting to distance education using ICTs (Information and Communication Technologies). The study used interviews, and eight teachers were selected. All respondents attended the MSc [ITE] program, (Information Technology program) and it can be argued that they had better preparation for distance education than if respondents did not attend a computer program.

The negative effects of using ICTs during SARS were lack of preparation because of the sudden closures, (Fox, 2007 p.326). The sudden closure of the schools during SARS left most teachers unprepared, (Fox, 2007 p.321). Neither was the use of ICT in education anticipated or prepared (Fox, 2007 p.319). The teachers were faster inducted than they liked or thought possible in using ICTs in education, (Fox, 2007 p.326). Some teachers felt frustrated while some teachers found it to be an interesting discovery to use ICT in education, (Fox, 2007 p.319). The positive effect of using ICTs during SARS included a deeper understanding of the potential of ICT in education.

2.3 High school students' perceptions

A crucial limitation in most studies is to compare traditional distance education to crisis distance education as it is the same thing, failing to recognize that the pandemic Covid-19, is an essential variable, (Al Lily et al., (2020 p.1). In the first section of the present chapter, we looked at crisis management. Then we looked at previous school crisis studies to see what has been studied in a school crisis. Yet, crisis distance education that followed in spring 2020 in high schools in Sweden has never happened before and there is a knowledge gap. Al Lily et al., (2020 p.1) authored an article about the crisis of distance education during Covid-19 but focused on Arab culture. Bergdahl and Nouri, (2020) conducted a study in Sweden about crisis distance education in high school due to Covid-19 but focusing on the teacher's experiences. There is a need for Sweden's high school students' perceptions as well.

3. Method

This chapter presents the choice of method for the research and the motivation for the method used in this study.

3.1 Data collection

There are different options to conduct your research. It is the purpose and issues in the study that will determine whether a particular method is appropriate, (Ejlertsson 2019, p.13).

Quantitative research that will be used in this study is usually when performing larger data collections with more general content, (Patel, Davidson 2019, p.51).

A web survey, where students in high school can answer the questions will be used. The advantage of a web survey is that it can be carried out directly on a mobile or computer, (Ejlertsson 2019, p.13). Data collection is also easy as all information is saved on a data file. A survey also eliminates the influence on the respondents of the interviewer's way that can be felt in facial expressions and tone of voice, (Bryman 2018, p.287). Another advantage is that the respondent can ponder the questions in peace, (Ejlertsson 2019, p.15).

Similar studies mentioned in this study: Tanriogen and Savci (2011), Olalekan and Adeola (2015), and Werner (2014) have used surveys to get their results and have asked similar questions in their study. Studying other methods in similar studies with similar questions led to choose surveys.

Yet there are negative aspects to using surveys in your studies. It is not possible to ask follow-up questions, which can then cause important deeper answers to be missed, (Ejlertsson 2019, p.16). The respondent may also get bored or not read through all the questions before answering. There may also be misunderstandings on the issues. Therefore, it is important to write clear and direct questions that should as little as possible be avoided from being misinterpreted, (Ejlertsson 2019, p.16).

3.2 The survey

An initial period of research begins to investigate and analyze which questions to ask to get answers to the research questions one asks, (Ejlertsson 2019, p 21).

A thing to keep in mind when asking questions is to avoid using long, ambiguous, and double questions, (Ejlertsson 2019, p.16). It is also important not to use vague terms. It is also important to formulate the language according to the target group and not use terms that the respondents do not know as it can make them not understand the questions and they may also lose motivation to answer honestly. You can also use other people's questions to your advantage, (Ejlertsson 2019, p.10). Werner (2014 p.10) had a survey in its study that worked as a guide and template for these study questions.

In this web survey, 27 questions will be asked. The number of questions to be asked in a survey should be such that the respondent can answer the questions between 15-30 minutes, (Ejlertsson 2019, p.16). Within this time frame, it should be possible to answer 27 questions.

A Likert scale is used for response options. The answer options will be, disagree, strongly disagree, neither agree nor disagree, agree, strongly agree.

Questions will be closed. Closed questions make it easy to process the answers and it increases the comparability of the answers later when the data collection has been collected, (Bryman 2018, p.316). It is also easier for the respondent to answer the questions, (Bryman 2018, p.317). Yet there are negatives and disadvantages with closed questions as well and one disadvantage is according to Bryman (2018, p.317) that respondent's spontaneity and depth are missed in the answers. There may not be an alternative answer that fits the respondents' answer and they become irritated and do not answer the survey, (Bryman 2018, p. 319).

3.3 Participants

The selection of respondents was made based on the following criteria:

High school students, 16 years or older, who live in Sweden.

I posted a link to the survey in three Facebook groups: “Distansundervisning i Sverige”, “Utmanande undervisning” and “Engelska för gymnasielärare” targeting high school students or high school teachers.

I targeted high school teachers to ask if they could advise their students to respond to the survey. The reason I also targeted high school teachers was that it was hard to find high school groups on Facebook and once, they were found, I was not admitted to the groups.

I also posted a link to the survey in a forum called “Mimers Brunn” which is the largest study community where many high school students write posts.

The web survey was open for three weeks. When I had 43 answers to my survey and needed more answers to finish this study, I used a convenience method where I reached out to family and friends around me that knew a high school student, asking them to pass on the survey to the high school student. When the survey was closed, 51 answers were collected.

3.4 Reliability and Validity

Reliability and Validity are key concerns when it comes to quantitative studies and need to be assessed and analyzed. Thus, we define and assess these in the results section, 4.6.

3.5 Ethical consideration

Ethical considerations are important in research. In Sweden, there is an ethics law that regulates ethical issues in connection with research concerning people. Act 2003: 460 on ethical review of research concerning people, (Riksdagsförvaltningen, 2020). The Code of Ethics has been a guideline throughout this thesis. No names or personal details were obtained in the survey. Account has also been taken of the rules that apply to the GDPR and the management of personal data, (Datainspektionen, 2020). The respondents in this were informed about the purpose of their participation and that it was completely voluntary and that you can withdraw your consent at any time without giving a reason. They were also informed that the material from their answers in the survey would not be used in any other way than as a basis for this work.

4. Results

This part describes the results of the web survey that was conducted on high school students. The results are described in five themes. The identified themes are digital tools, preparedness, academic performance, information and explanation, and evaluation.

4.1 Digital tools

There is a variety of digital tools available in the market used in distance education. To limit the proportion of digital tools, mention in this thesis and know which ones to include in this study, a pilot study was carried out by posting a post in a Facebook group (“Distansundervisning i Sverige”) in which 41 high school teachers answered which digital tools were used during distance education at high schools during Covid-19.

The digital tools will be named as follows: DT1, DT2, DT3, DT4, DT5, DT6, DT7, DT8, DT9, DT10 because this thesis does not intend to rate different digital tools. A description of each tool is provided in Table 1.

Name	Description
DT1	A service for sharing files between teachers and students.
DT2	Provides instant messaging and a group messaging feature.
DT3	A video communication service.
DT4	A video communication service.
DT5	A tool that offers chat, video conferencing, and file storage
DT6	A tool for digital exams.
DT7	A website with videos uploaded by its users.
DT8	Online whiteboard.
DT9	Communication tool for conversation and chat.
DT10	A learning management system.

Table 1: Digital tools used in distance education during Covid-19

As Figure 3 shows, the most used tool among the respondents was DT5, DT6, and D7 with more than 50 percent of users. Other tools that stood out also were DT1 and DT3.

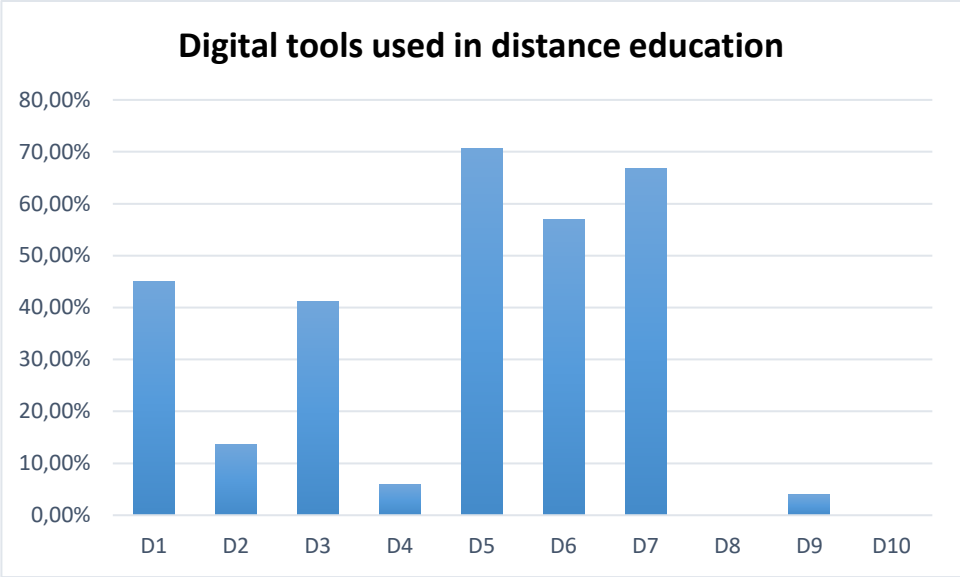


Figure 3: Digital tools

Students could use two or three tools simultaneously to follow their education as the school and teachers identified the more suitable tool for each subject. Students could communicate and interact with the school and teachers through several different alternative technologies to offer them more flexibility and accessibility to the course material and to continue to interact with the teachers and administration at their schools.

The most preferred tools were DT1, DT5, and DT7 with over 50 percent responding that they preferred it and these same tools came also as being the most used.

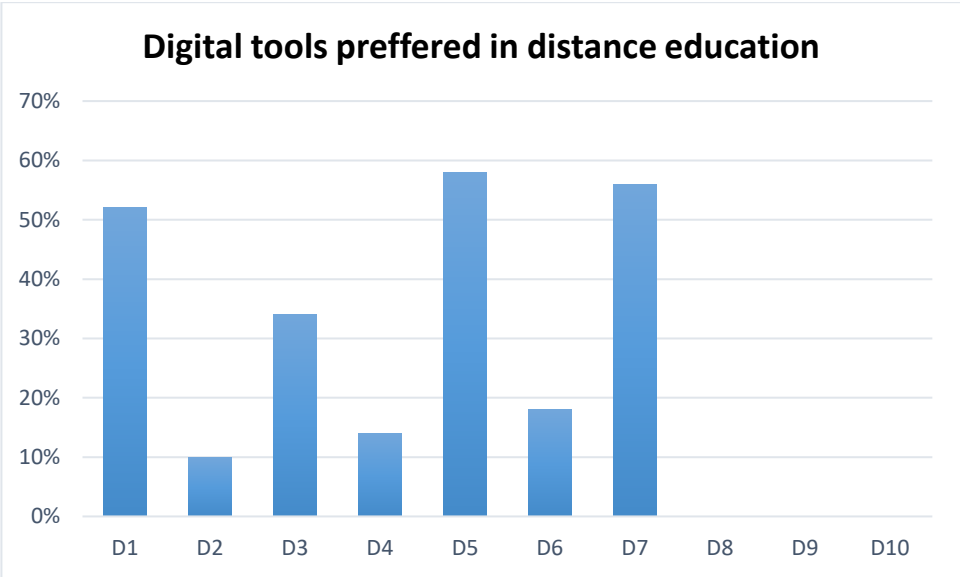


Figure 4: Digital tools preferences

70 percent answered that they used 1-3 digital tools in distance education. 54 percent of the respondents thought that teachers had access to all the digital tools needed to educate.

To be able to use digital tools in education, it is important to have a computer and internet connection. Almost all respondents had access to a computer and an internet connection (98%). Most answered that the school helped the student with a computer (75%) and internet connection (65%) when needed.

Almost 70 percent answered that they felt comfortable / extremely comfortable with the digital tools used in distance education.

That can be compared to that only 38 percent of respondents thought that their teachers were comfortable / extremely comfortable with the digital tools used, which may raise the question regarding the teacher’s preparedness for technologies use and distance education.

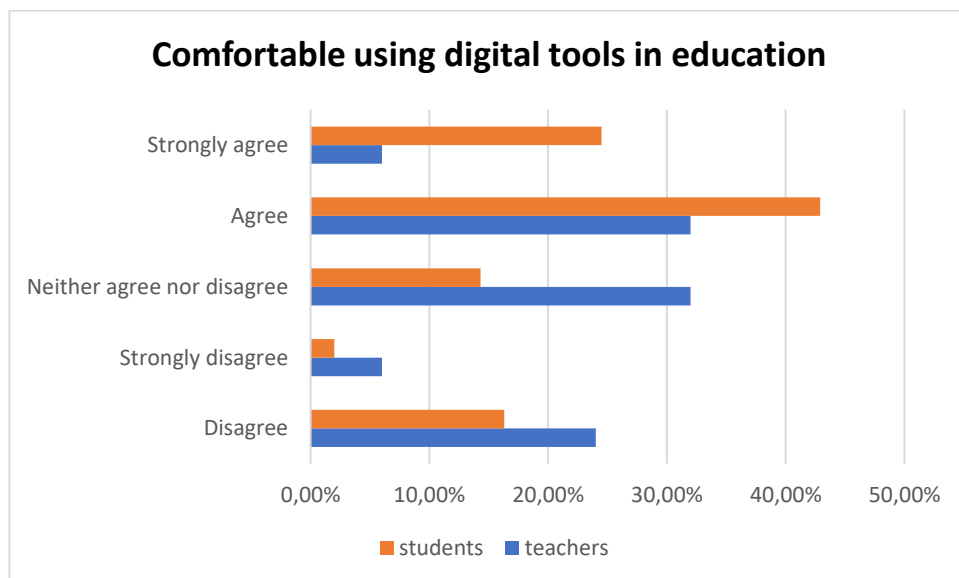


Figure 5: Use of digital tools

4.2 Preparedness

In your free time, you choose the digital tools you want to use, as individuals experience no pressure to learn and master the use of these technologies. Being familiar with digital tools, in general, differs from the need to be introduced to specific packages that will be used for educational purposes. The specific programs that are used for educational purposes may not be used in general or in leisure time.

Digital tools are the most important tool in distance education and the readiness for respondents to use digital tools for educational purposes was at a high level. 75 percent answered that they had used digital tools often in education before distance education. In this crisis, the flexibility offered to students to use different digital tools from those they are

familiar with, and the possible use of a combination of these gives a safe feeling for not being depending on yes or no to master the teaching system package in such short time.

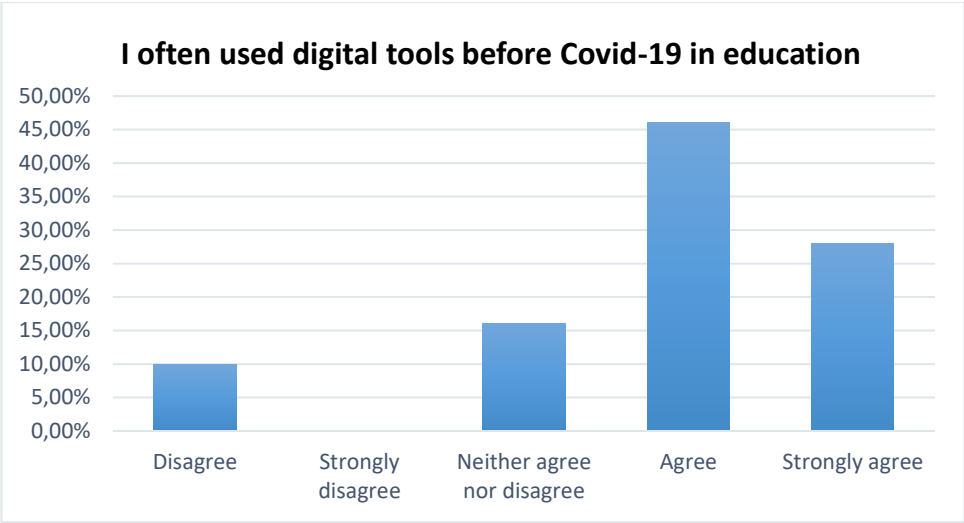


Figure 6: Familiarity with Digital tools

The question regarding feeling overall prepared for distance education, 43 percent of the students did not feel prepared for the distance education that took place during covid-19.

However, fewer students (20%) believed that their teachers were unprepared for the distance education that took place.

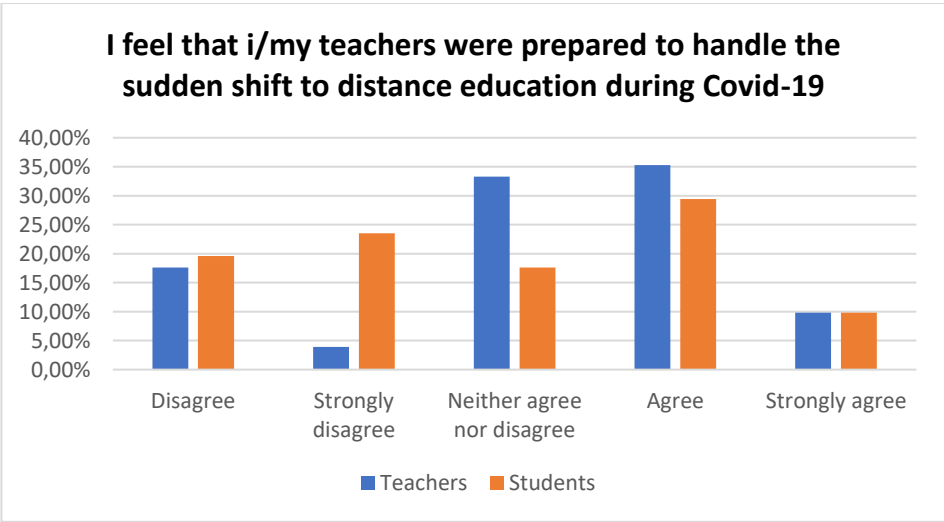


Figure 7: Teachers' Preparedness

Almost all respondents did not think that the school had prepared them for distance education (75%).

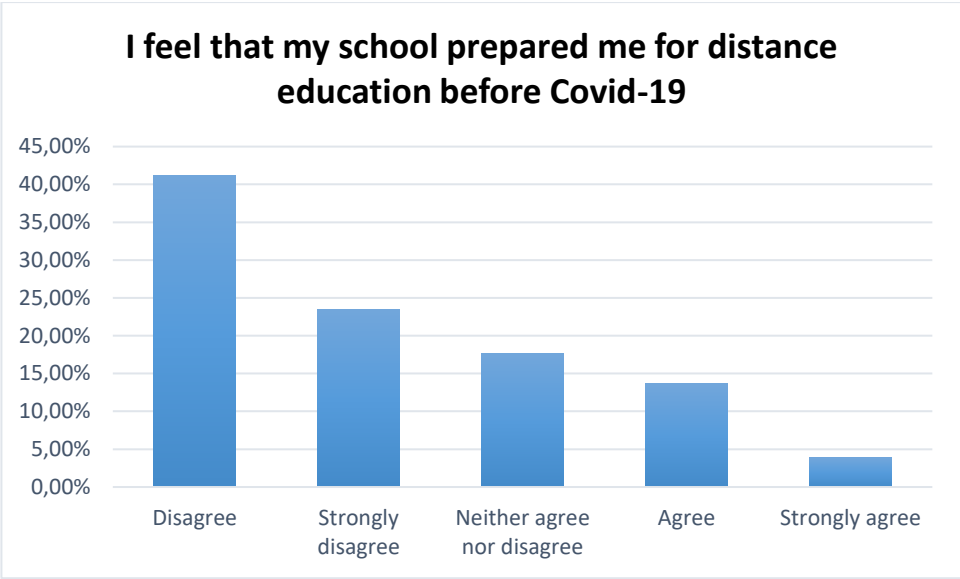


Figure 8: Students' Preparedness

When asked if they feel prepared for distance education next time it needs to happen in a crisis, 50 percent answered that they would feel prepared. 50 percent of the students also felt that their teachers would be prepared for it.

4.3 Academic performance

A lot of students (58%) felt that their academic achievements had been affected due to distance education.

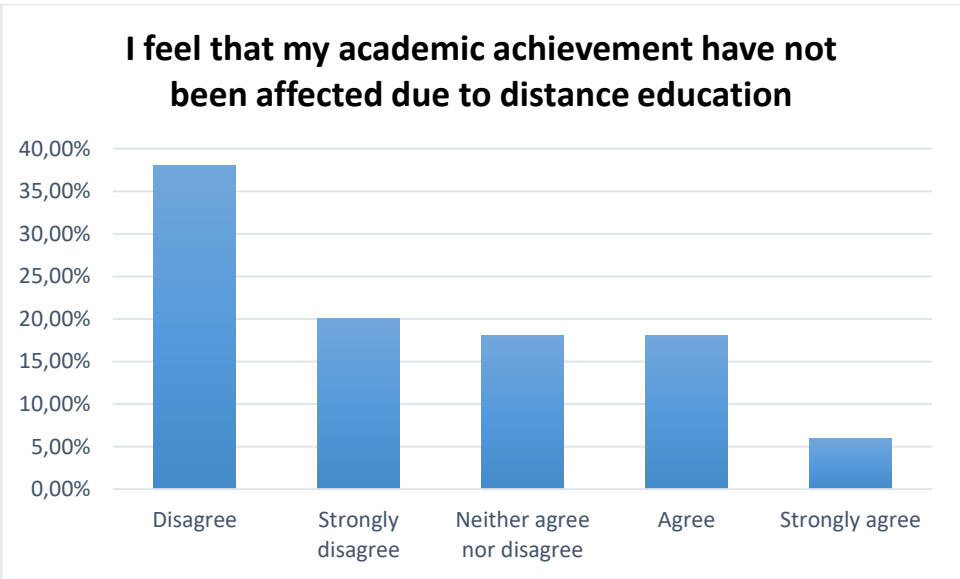


Figure 9: Academic Achievement in crisis time

Yet only 18 percent of the respondents felt that their learning needs were not met with digital tools.

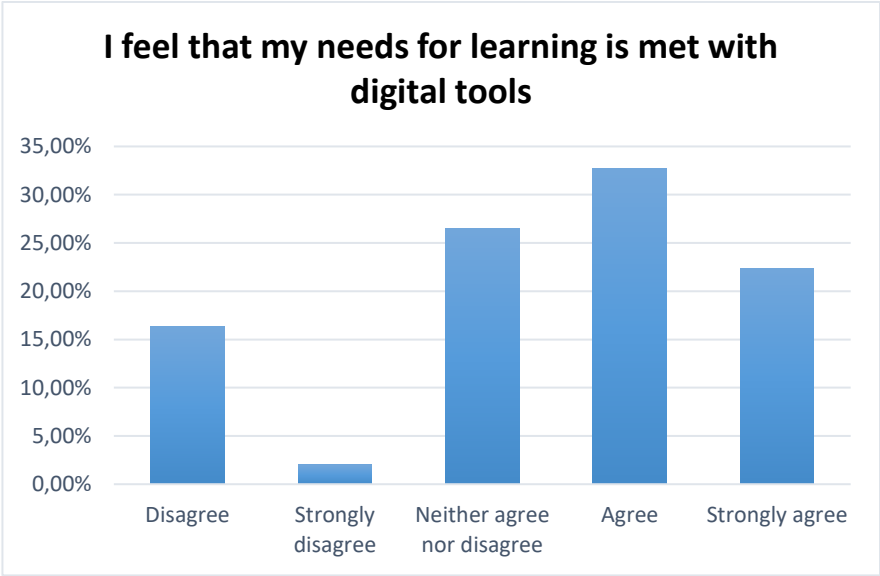


Figure 10: Meeting expected Learning.

The students' access to help was relatively good among the respondents as only 20 percent disagreed that the school gave them support in case of problems with distance education.

4.4 Information and explanation

The majority (2/3) of respondents felt that the school had informed and explained what would *happen next*.

On the other hand, many of the students did not feel that the school informed (40 %) or explained (44%) what was *planned*.

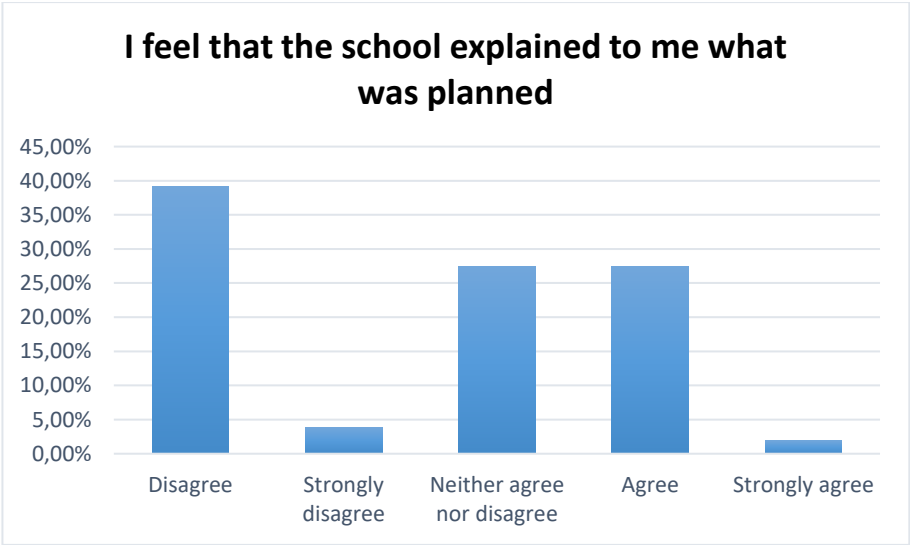


Figure 11: School information and explanation

4.5 Evaluation

50 percent had not been given the opportunity by the school to evaluate the experience with distance education during covid-19 and only 12 percent had been allowed to evaluate.

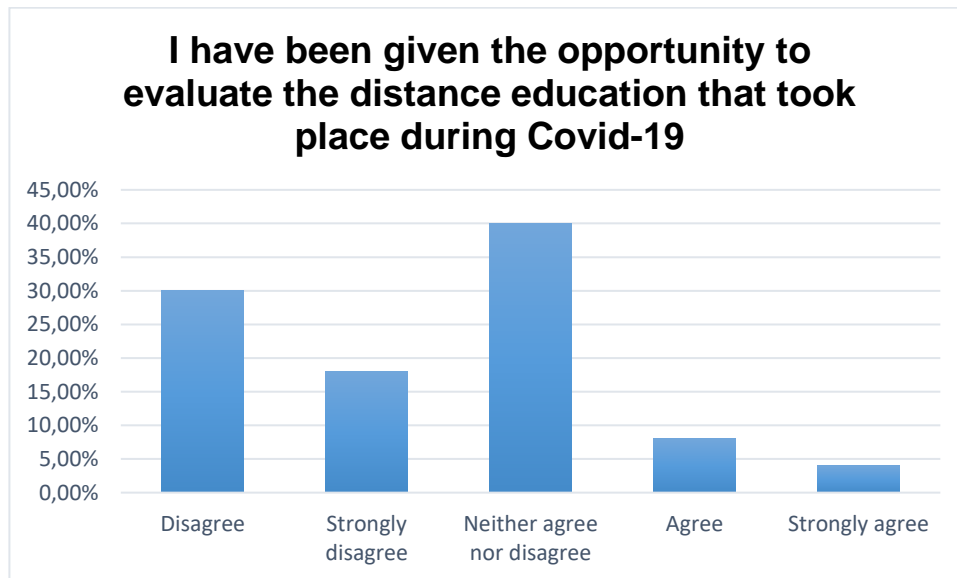


Figure 12: Evaluation of distance education

82 percent understood why the sudden shift to distance education needed to happen during Covid-19. So, the understanding of the purpose of distance education was good among the students.

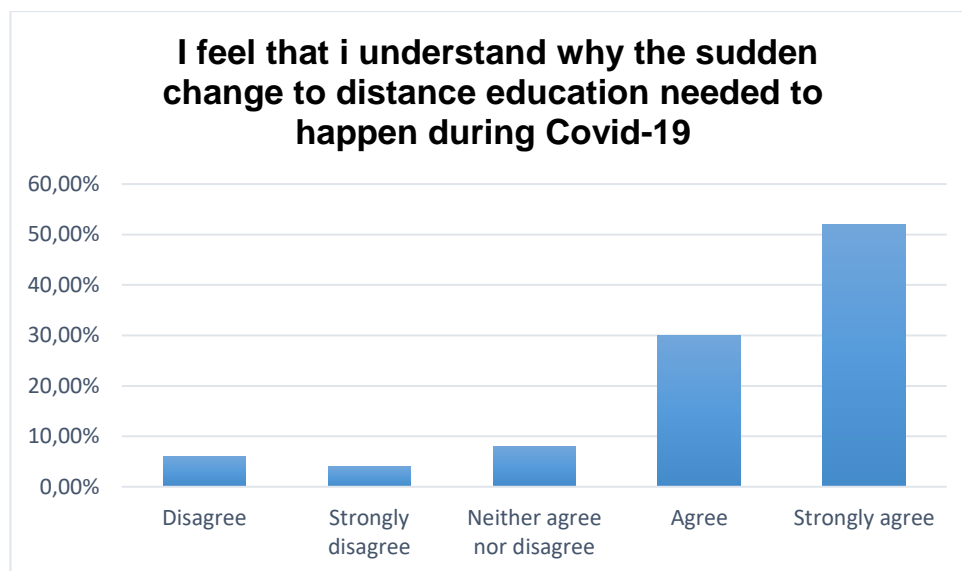


Figure 13: Evaluation, understanding why distance education needed to happen

4.6 Validity and reliability

The survey must be credible and then validity and reliability are needed. Validity is about the accuracy of a measure and reliability is about the consistency of a measure.

Validity is how the survey questions can be measured with what is intended for the research, (Ejlertsson 2019, p.119). The questions in this survey must be asked so that the respondent's answers correspond to reality. The validity can be measured in this thesis whether the result is what was intended, the answers to these studies' questions, and its purpose (Ejlertsson 2019, p.119). We had the survey opened for three weeks. The survey contained five answering options, using a Likert scale (disagree, strongly disagree, neither agree nor disagree, agree, strongly agree). The respondents were not pressured in any ways to select specific choices among the answer set and it was voluntary to be a part of the survey. As noted in 3.1, other similar studies mentioned in this study were followed: Tanriogen and Savci (2011), Olalekan and Adeola (2015), and Werner (2014). They all used surveys to get their results and have asked similar questions in their studies. Werner's (2014 p.10) survey questions have worked as a guideline to get the results that are intended in this study. Studying other methods in similar studies with similar questions led to choose this method.

Reliability means that if the respondent were to do the same survey again, the answers should be the same as the last time the survey was conducted, (Ejlertsson 2019, p.121). Reliability is checked with the survey. Yet, it is not a hundred percent sure that it is only high school students that have answered the survey as the survey was given free and open access on the internet. But the author tried to minimize the risk by only offering the link to people who are direct or indirectly involved with high school students. The first question in the survey is: "Are you a high school student? (16 years or older)". If the answer is no, the survey ends. Of the respondents, all answered yes to the question, so there were 100% high school students (cf. Figure .14).

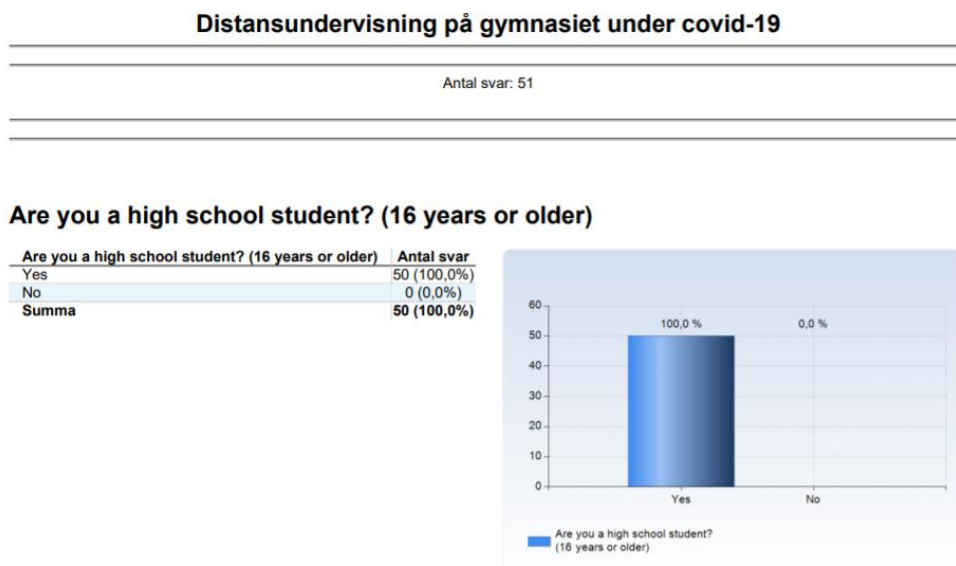


Figure 14 Responses to the initial question about being a high school student

5. Analysis

In this section, the results will be analyzed and discussed referring to results from previous studies.

5.1 Technologies used in distance education.

Digital tools are the key tool in distance education. It is important to know which digital tools they used when analyzing their experience of crisis distance education. In 4.1 the different tools are explained. According to Moore, (2011. p.128), it is important to know how the learning environment is used, and the influences of the tools and techniques that distinguish the differences in learning outcomes.

The result from the web survey shows that the tools commonly used among the respondents were DT1, DT3, DT5, DT6, and D7. The most used tools among the respondents were DT5, DT6, and DT7 with over 50 percent of the respondents using them. The most preferred digital tools with over 50 percent responding that they preferred it were DT1, DT5, and DT7.

In this crisis, the flexibility offered to students to use different digital tools from those they are familiar with, and the possible use of a combination of these gives a safe feeling for not being depending on yes or no to master the teaching system package in such short time. 70 percent answered that they used 1-3 digital tools in distance education. Students could use two or three tools simultaneously to follow their education as the school and teachers identified the more suitable tool for each subject.

5.2 The students' experience

Feeling prepared

The negative effects of using ICTs in Hong Kong in schools during SARS were lack of preparation because of the sudden closures, (Fox, 2007 p.326). The preparation for using digital tools for education during Covid-19 in high schools in Sweden was good because the readiness for respondents to use digital tools in education was great. 80 percent answered that they had used digital tools often in education before distance education. Almost 70 percent answered that they felt comfortable / extremely comfortable with the digital tools used in distance education.

Crisis distance education differs from traditional distance education being suddenly, unready, and force-fully implemented, (Al Lily et al., 2020 p.1). Half answered no and half answered yes of the respondents to the question if they felt prepared for the crisis of distance education that took place. 75 percent did not think that the school had prepared them for distance education. On the other hand, it is good that almost all respondents (80 percent) had often used digital tools in education before. Which has most probably helped students feeling more prepared.

Academic performance

A lot of the respondents (58 percent) felt that their academic achievements had been affected due to distance education. A major school crisis can impact student academic performance, (Werner, 2014 p.2). It was a major school crisis with covid-19 and the fast transition to distance education. Yet most of the respondents also felt that their learning needs were met with digital tools, only 18 percent thought their learning needs with digital tools were not met. Students' access to help was good among the respondents, but 20 percent disagreed that the school gave them support in case of problems with distance education.

Understanding the purpose

Nathaniel and Van der Heyden, (2020 p.3) point out to engage people early and communicate the method that will be followed to conquer the crisis. This reassures people that the leadership has a method, and it aligns people and reduces the odds of dysfunctional behaviors. According to Nathaniel and Van der Heyden (2020 p.3), the key is to communicate purpose. Out of the respondents, almost everyone (82 percent) understood why the sudden shift to distance education needed to happen during covid-19.

Access to information and explanation

Given the uncertainty in times of crisis, Nathaniel and Van der Heyden, (2020 p.5) think you should explain the process that will be followed to manage the crisis. The majority (2/3) of respondents felt that the school had informed and explained what would happen next. Yet, on the other hand, 40 percent did not feel that the school informed about what was planned. Similarly, 44 percent of the respondents answered that the school did not explain what was planned.

5.3 A reading on the crisis response implementation in high schools.

Engage

This part of the framework is about engaging people early and communicate the method that will be followed to conquer the crisis, (Nathaniel and Van der Heyden, 2020 p.3). Also, to explain the process that will be followed to manage the crisis. In the web survey, the majority (2/3) of respondents felt that the school had informed and explained what would happen next. Yet, on the other hand, 40 percent of the respondents did not feel that the school informed about what was planned. Similarly, 44 percent of the respondents answered that they did not explain what was planned. In Werner's (2014 p.2) study the results indicated that the more involved school counselors are in the crisis planning process, the more prepared they feel, (Werner, 2014 p.2). This can be transferred to students.

According to Nathaniel and Van der Heyden (2020 p.2), you should have memory and look for patterns, because it is rare that crises are completely new and there are more similar than you might imagine. For example, when SARS spread rapidly in 2003, Hong Kong put in measures to reduce the spread of the virus and one was to close all 1302 schools and universities in Hong Kong, (Fox, 2007 p.319). Also in 2014, Nigeria's schools closed fearing

the spread of Ebola virus disease and had a long period of delay of the resumption to school, (Olalekan and Adeola, 2015 p.1). You can look at those past similar crises for examples and study them and learn from them. Because by studying past events we can develop strategies for coping with similar events in the future, (Faulkner, 2001 p.146).

This part of the framework can be implemented by:

- Inform and explain the method that will be followed to the students.
- Inform and explain what is planned for the students.
- Look at similar crisis and learn from them.

Explore

This part of the framework is about exploring the crisis and how to fight it, (Nathanial and Van der Heyden, (2020 p.3). According to Nathaniel Van der Heyden (2020, p.3) in a crisis, most should fight the crisis, but another team should already be looking ahead at the exit and post-crisis. Similar to this, Heath and Sheen (2005 p.3) point out that it's important to plan and prepare a school crisis plan. Tanriogen and Savci (2011 p.1) recommended obligatory courses entitled as crisis management for teachers and managerial staff should be given by specialists.

These two parts of the framework can be implemented by:

- Prepare a school crisis plan.
- Have two teams. One team to fight the crisis, another team to be in charged over the crisis exit and post-crisis.
- Have crisis management courses in schools given by a specialist.

Explain and execute.

This part of the framework is about explaining your purpose with one or multiple scenarios that will work, (Nathanial and Van der Heyden, 2020 p.5). The key is to communicate the purpose, with one clear scenario that will work or several alternatives that together should prove to be a good toolkit for managing the crisis.

Also, execute what has been decided and indicate that the battle has started, (Nathanial and Van der Heyden, 2020 p.5). Leadership will remind stakeholders, of the purpose; what was decided, what victory looks like, and what results to expect, and how these will be achieved. Of the respondents, almost everyone (82%) understood why the sudden shift to distance education needed to happen during covid-19.

These two parts of the framework can be implemented by:

- Communicate the purpose of distance education to the students.
- Remind students of the results they can expect, and how, they will achieve these.
- Do what has been decided.

Evaluate

Evaluate and learn, never let a good crisis go to waste, (Nathanial and Van der Heyden, 2020 p.7). Only 12 percent had been given the opportunity by the school to evaluate the experience with distance education during covid-19.

According to Nathanial and Van der Heyden, (2020 p.7) it is not sufficient to learn, one must also adapt so that lessons are truly integrated resulting in improved readiness to manage a crisis that will share many patterns with earlier crises.

In previous studies, you can also acknowledge the importance of readiness. Negative effects shown in the results of using ICTs during SARS in Hong Kong were lack of preparation because of the sudden closures, (Fox, 2007 p.326). Olalekan and Adeola (2015 p.1) suggested the schools needed to take more proactive and sustainable measures toward effective control of Ebola, the ongoing epidemic, and the prevention of future occurrences.

This part of the framework can be implemented by:

- Let the students evaluate the experience with distance education to know better next time and learn, and
- Improve readiness to manage future crises by learning and adapting the lessons from the current crisis.

Summary of steps that can be implemented in crisis distance education.	
Engage	Inform and explain the method that will be followed to the students. Inform and explain what is planned to the students. Look at similar crisis and learn from them.
Explore	Prepare a school crisis plan Have two teams. One team to fight the crisis, another team to be in charged over the crisis exit and post crisis. Have crisis management courses in schools given by specialist.
Explain	Clearly communicate the purpose of distance education to the students. Remind students of the results that can be expected and how they will be achieved.
Execute	Do what has been decided.
Evaluate	Let the students evaluate the experience with distance education to know better next time and learn. Improve readiness to manage future crisis by learning and adapting the lessons from current crisis.

Table 2: Steps that can be implemented in crisis distance education

6. Conclusions

This study has addressed two questions by analyzing high school students' experience with distance education during the Covid-19 crisis and evaluate to which extent crisis response steps could be implemented to the crisis. The research questions are given below in italics and below each question follows the answer that this study has provided.

How did high school students experience crisis distance education?

The crisis distance education that was implemented from one day to another during covid-19 in high schools in Sweden cannot completely be comparable to regular distance education. CDE (crisis distance education) has an essential variable, Covid-19. Crisis distance education differs from traditional distance education being suddenly, unready, and force-fully implemented, (Al Lily et al., 2020 p.1). Almost half of the students (45 percent) did not feel prepared for rapid distance education. Yet the preparation for using digital tools was good as 75 percent of respondents often used digital tools in education before. This may have helped in the preparation and facilitated the shift to distance education.

A major school crisis can impact student academic performance, (Werner, 2014 p.2). Many of the students felt that their academic achievement had been affected by distance education. Yet at the same time, many students felt that their learning was met with digital tools. So, their sense that their academic achievements had been affected is probably not to do with digital tools.

According to Nathaniel and Van der Heyden (2020 p.3), the key is to communicate purpose. The students' understanding of why distance education had to take place was exceptionally good, almost everyone answered that they understood why distance education had to be implemented. Given the uncertainty in times of crisis, Nathaniel and Van der Heyden, (2020 p.5) point out you should explain the process that will be followed to manage the crisis. Student's access to information and an explanation of what was going to happen next was good. However, their access to information and explanations for what was planned was not so good. In Werner's (2014 p.2) study the results indicated that the more involved school counselors are in the crisis planning process, the more prepared they feel. This can be transferred to students and a conclusion of that is to make the students more involved in the planning process as well. The implementation from traditional face-to-face education to distance education happened over one-day notification for almost all high school students and the result showed that 75 percent of the students thought that the school had not prepared them for distance education. A better preparation from the school can make the students feel the school prepared them better next time. Only 12 percent have been allowed to evaluate their experiences of crisis distance education. The students hold important knowledge and experience by their experience of crisis distance education. To give the students more opportunities to evaluate their experience of crisis distance education is important for the future.

To which extent can educational institutions implement crisis response steps in crisis distance education?

The steps that can be implemented in Nathaniel and Van der Heyden (2020) crisis management framework are:

1. Prepare a school crisis plan.
2. Inform and explain the method that will be followed to the students.
3. Inform and explain what is planned for the students.
4. Look at similar crisis and learn from them.
5. Have two teams. One team to fight the crisis, another team to be in charged over the crisis exit and post-crisis.
6. Have crisis management courses in schools given by a specialist.
7. Communicate the purpose of distance education to the students.
8. Remind students of the results that can be expected and how they will be achieved.
9. Do what has been decided.
10. Let the students evaluate the experience with distance education to know better next time and learn.
11. Improve readiness to manage future crises by learning and adapting the lessons from the current crisis.

In this thesis, the focus was on procedural, logistics, and pedagogical aspects (supported by technology). For future studies, there are many other interesting topics and aspects to study in the crisis distance learning that took place during Covid-19. Future research could be to look at other aspects in the student's experience of crisis distance education such as enjoyment of distance learning, social factors, and psychological factors. Future research could also be to compare different regions or countries.

In this study, only 51 answers were collected. If more answers were collected this study would have been more general. This study also used a Likert scale with five answering options: disagree, strongly disagree, neither agree nor disagree, agree, strongly agree. It could have been better to only have used four answering options and removed the answer option: "neither agree nor disagree" because this answer makes it harder to process data. Yet in a way, "neither agree nor disagree" is also an answer in some sense. Because sometimes the respondent does not have any opinion about a question or does not know anything about it. Then it's maybe better to have this answer option, instead of the respondent just choosing an answer randomly on a question that they do not know anything about or do not have an opinion about. It can also check the validity as if you have a large percent choosing the answer "neither agree nor disagree", it was probably not a good question.

A similar study was done in Sweden by Bergdahl and Nouri, (2020) that captured the high school teachers' experiences. This study was meant to capture the student's experiences in high school. Because it is important to learn from the past and know better next time. At the beginning of this thesis work, it was meant for this thesis to be of help if the high schools closed again. Yet during this thesis work, the high schools already closed again to reduce the

spread of Covid-19. Yet if the high schools need to close again, they can use this study to evaluate student's experiences on crisis distance education to know better next time. The high schools can use the steps from the results that can be implemented in crisis distance education in their school crisis plane to improve the crisis response and the student's experience of crisis distance education.

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Bibliography

- Al Lily, A.E., Ismail, A.F., Abunasser, F.M., Alhajhoj Alqahtani, R.H. (2020). Distance education as a response to pandemics: Coronavirus and Arab culture. *Technology in Society*, 63, 101317. <https://doi.org/10.1016/j.techsoc.2020.101317>
- Andersen, A. L., Hansen, E. T., Johannesen, N., & Sheridan, A. (2020). Pandemic, shutdown and consumer spending: Lessons from scandinavian policy responses to COVID-19. arXiv:2005.04630.
- Bryman, A. (2018). *Samhällsvetenskapliga metoder*. 3th ed. Stockholm: Liber.
- Atallah, C. (2020). *Gymnasieskolor och högskolor rekommenderas distansundervisning*. <https://www.svt.se/nyheter/inrikes/gymnasieskolor-och-hogskolor-rekommenderas-distansundervisning> [accessed 11.5.20]
- Bergdahl, N. & Nouri, J. (2020). Covid-19 and Crisis-Prompted Distance Education in Sweden. *Technology Knowledge and Learning*. <https://doi.org/10.1007/s10758-020-09470-6>
- Coombs, W.T. (2007). Protecting Organization Reputations During a Crisis: The Development and Application of Situational Crisis Communication Theory. *Corp Reputation*, 10, 163–176. <https://doi.org/10.1057/palgrave.crr.1550049>
- Datainspektionen. (2020). *Dataskyddsförordningen GDPR*. <https://www.datainspektionen.se/lagar--regler/dataskyddsförordningen/> [accessed 11.9.20]
- European Centre for Disease Prevention and Control. (2020). *COVID-19 situation update worldwide, as of 20 October 2020*. <https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases> [accessed 10.20.20]
- Ejlertsson, G. (2019). *Enkäten i praktiken - En handbok i enkätmetodik*. 4th ed. Lund: Studentlitteratur.
- Faulkner, B. (2001). Towards a framework for tourism disaster management. *Tourism Management*, 22, 135–147. [https://doi.org/10.1016/S0261-5177\(00\)00048-0](https://doi.org/10.1016/S0261-5177(00)00048-0)
- Folkhälsomyndigheten. (2020a). *Sjukdomsinformation om coronavirus inklusive sars, mers och covid-19 — Folkhälsomyndigheten*. <http://www.folkhalsomyndigheten.se/smittskydd-beredskap/smittsamma-sjukdomar/coronavirus/> [accessed 11.5.20]
- Folkhälsomyndigheten. (2020b). *Veckorapporter om covid-19 — Folkhälsomyndigheten*. <http://www.folkhalsomyndigheten.se/folkhalsorapportering-statistik/statistik-a-o/sjukdomsstatistik/covid-19-veckorapporter/> [accessed 10.20.20]
- Folkhälsomyndigheten. (2020c). *Gymnasieskolorna kan öppna till höstterminen — Folkhälsomyndigheten*. <http://www.folkhalsomyndigheten.se/nyheter-och-press/nyhetsarkiv/2020/maj/gymnasieskolorna-kan-oppna-till-hostterminen/> [accessed 11.10.20]
- Fox, B. (2007). ICT Use During SARS: Teachers' Experiences. *Journal of Technology and Teacher Education*, 15(2), 191-2005.
- Moore, J.L., Dickson-Deane, C., Galyen, K. (2011). e-Learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education, Web mining and higher education: Introduction to the special issue*, 14, 129–135. <https://doi.org/10.1016/j.iheduc.2010.10.001>
- Nathanial, P. & Van der Heyden, L. (2020). Crisis Management: Framework and Principles with Applications to CoVid-19 (SSRN Scholarly Paper No. ID 3560259). Social Science Research Network, Rochester, NY. <https://doi.org/10.2139/ssrn.3560259>
- Olalekan, A.W., Adeola, E. (2015). How Prepared Are Nigerian Schools for Ebola Virus Disease Prevention and Control? *Annals of Global Health*, 80, 452–457. <https://doi.org/10.1016/j.aogh.2015.02.001>

- Olinger Steeves, R.M., Metallo, S.A., Byrd, S.M., Erickson, M.R., Gresham, F.M. (2017). Crisis Preparedness in Schools: Evaluating Staff Perspectives and Providing Recommendations for Best Practice. *Psychology in the Schools*, 54, 563–580. <https://doi.org/10.1002/pits.22017>
- Patel, R., Davidson, B. (2019). *Forskningsmetodikens grunder - Att planera, genomföra och rapportera en undersökning*, 5th ed. Lund: Studentlitteratur AB.
- Pearson, C.M, Clair, J.A. (1998). Reframing Crisis Management. *The Academy of Management Review*, 23, 59–76. <https://doi.org/10.2307/259099>
- Riksdagsförvaltningen. (2020). *Lag (2003:460) om etikprovning av forskning som avser människor Svensk författningssamling 2003:2003:460 t.o.m. SFS 2019:1144 - Riksdagen*. https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2003460-om-etikprovning-av-forskning-som_sfs-2003-460 [accessed 11.9.20]
- Spillan, J., Crandall, W. (2020). Crisis Planning in the Nonprofit Sector: Should We Plan for Something Bad If It May Not Occur? *Southern Business Review*, 27, 18–29.
- Tanriogen, A. & Savci, S. (2011). Perceptions of High School Teachers Related to crisis management in their schools. *EURASIAN Eurasian journal of educational research*, 11, 243-258.
- UNESCO. (2020). *Education: From disruption to recovery*. <https://en.unesco.org/covid19/educationresponse> [accessed 10.12.20]
- Werner, D. (2014). Perceptions of Preparedness for a Major School Crisis: An Evaluation of Missouri School Counselors. *Children & Schools*, 37, 28-35. <https://doi.org/10.1093/cs/cdu031>
- Whillans, A., M.G, L., Macchia, L. Yemiscigil, A. (2020). *Why a Covid-19 World Feels Both Tiring and Hopeful for College Students*. <https://hbr.org/2020/08/why-a-covid-19-world-feels-both-tiring-and-hopeful-for-college-students> [accessed 11.30.20]
- Heath, M.A., Sheen, D. (2005). *School-based Crisis Intervention: Preparing All Personnel to Assist*. New York: Guilford Press.
- World Health Organization. (2020.) *Coronavirus disease (COVID-19) – World Health Organization*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019> [accessed 10.1.20]
- World Health Organization. (2003). *WHO | Cumulative Number of Reported Probable Cases of SARS*. https://www.who.int/csr/sars/country/2003_07_11/en/ [accessed 10.20.20]

Appendix 1

Survey questions

- Are you a high school student? (16 years or older)
- I feel that my teachers were prepared to handle the sudden shift to distance education during covid-19.
- I feel that I was prepared to handle the sudden shift to distance education during covid-19.
- I feel that my school prepared me for distance education before covid-19.
- I feel that the school explained to me what was going to happen next.
- I feel that the school informed me of what was going to happen next.
- I feel that the school informed me of what was planned.
- I feel that the school explained to me what was planned.
- I feel that I understand why the sudden shift to distance education needed to happen during covid-19.
- I feel the school gave me support in case of problems with distance education.
- I feel that my academic achievements were not affected due to distance education.
- How many digital tools did you use in distance education?
- I feel that the teachers are well prepared if they need to switch to distance education again during a crisis.
- I feel that I am well prepared if I need to switch to distance education again during a crisis.
- I was given the opportunity by the school to evaluate the experience with distance education during covid-19.
- I had access to a computer at home during distance education.
- I had access to an internet connection at home during distance education.
- My school helped students with access to computers when needed.
- My school helped students with access to internet connection when needed.
- I feel comfortable using the digital tools that were used in distance education.
- How many teachers did you have in your distance education?
- I feel that my teachers felt comfortable using digital tools.
- I often used digital tools before covid-19 in education.
- I feel that my teachers had access to all the digital tools needed to educate.
- I feel that my needs for learning are met with distance tools.
- Mark which digital tool you used in your distance education:
 - DT1, DT2, DT3, DT4, DT5, DT6, DT7, DT8, DT9, DT10
- Mark, which digital tool you prefer?
 - DT1, DT2, DT3, DT4, DT5, DT6, DT7, DT8, DT9, DT10