Expert knowledge utilization during the Covid-19 crisis: On the use of expert knowledge by the Dutch government during the Covid -19 crisis in the Netherlands

Linden, Karel van der

Expert knowledge utilization during the Covid-19 crisis

On the use of expert knowledge by the Dutch government during the Covid-19 crisis in the Netherlands

Karel van der Linden (3025314)

Faculty of Governance and Global Affairs at Leiden University

Universiteit Leiden

Date: 11 June 2021

Supervisor: Dr. V.E. (Valérie) Pattyn

Wordcount: 16437

Master track: Economics and Governance

Table of Contents

Introduction ... 3
Theoretical Framework ... 5
Crisis ... 5
Types of crisis ... 6
Covid-19 crisis: a creeping crisis ... 8
Expert Knowledge ... 10
Types of expert knowledge ... 11
Expert knowledge utilization types ... 13
The Covid-19 crisis and knowledge utilization ... 16
Methodology ... 18
Material for the analysis ... 19
Research method (quantitative and qualitative) ... 21
Operationalization of the concepts ... 21
Types of knowledge ... 22
Knowledge utilization types ... 22
Analysis ... 24
The first period (February to mid-March 2020) ... 25
Knowledge types (information data and ideas) ... 27
Knowledge utilization (instrumental and substantiating) ... 27
The second period (mid-April to early June 2020) ... 29
Type of knowledge (Information data and Ideas) ... 31
Knowledge utilization (substantiating & instrumental) ... 32
The third period (January 2021 until mid-February 2021) ... 34
Type of knowledge (information data and ideas) ... 36
Knowledge utilization (instrumental) ... 37
Answering the theoretical expectations ... 38
Knowledge utilization expectations (expectation 1 to 3) ... 38
Knowledge type expectations (expectation 4 to 6) ... 40
Conclusion ... 42
Discussion ... 44
References ... 46
Appendix A: documents used for the analysis ... 49

Introduction

During the Covid-19 crisis in the Netherlands, the Dutch government was advised by a special comity, the Outbreak Management Team (OMT) (RIVM, n.d.). The OMT functioned as an advisory body for the government to govern during the Covid-19 crisis. In the first press conferences Van Dissel, chairmen of the OMT even stood beside the Prime Minister and the Minister of health (NOS, 2020a). In addition, the OMT was appointed to keep members of parliament informed about the virus through the Technical Briefings (Technical briefing, 04-02-2020). During the Covid-19 crisis in the Netherlands from March 2020 onwards, one could not ignore the presence of the OMT. Expert knowledge seemingly played an important role during the Covid-19 pandemic in the Netherlands.

The influence of expert knowledge in an earlier Dutch crisis has already been researched by Van Nispen and Scholten (2017). They have analyzed the utilization of expert knowledge by the government in the recent migration crisis in the Netherlands and the Dutch financial crisis of '08/'09. One of their conclusions was that knowledge utilization in these crises did not differ from non-crisis situations. Van Nispen and Scholten argue that in the analyzed crises, expert knowledge was used to enhance the legitimacy of crisis governance. As argued by Van Nispen and Scholten the presence of a crisis did alter the way expert knowledge was utilized.

However, as illustrated, but also more importantly from recent literature it can be argued that the expert knowledge in the Covid-19 crises differs from prior situations. Boin et al. (2020) for example points to a more prominent presence and utilization of expert knowledge within the Covid-19 crises. He also argues that the present expert knowledge in the Netherlands during the Covid-19 crisis seems to have a rational contribution to the policy process. Expert knowledge in the covid-19 crisis, therefore, does not seem to be as symbolic as found in earlier crises as argued by Van Nispen and Scholten (2017).

The more prominent presence and the different use of expert knowledge in comparison to other crises, does not come from the fact that the Covid-19 crisis is a vastly different type of crisis than prior crises. Boin, Ekengren, and Rhinard (2020) categorize the Covid-19 crisis as a similar type of crisis to those analyzed by Van Nispen and Scholten (2017). Both are considered to be a creeping crisis by Boin, Ekengren, and Rhinard (2020). However, Boin, Ekengren, and Rhinard do point out that the Covid-19 differs in its complexity and clear

uncertainty. The understanding of the Covid-19 crisis required expertise. Most policymakers and citizens, therefore, were struck by the uncertainty of what the crisis would bring them. Because of this Boin, Ekengren and Rhinard argue that in the Covid-19 crises, expert knowledge has a more important role within the government than in the previous Dutch crisis.

From the literature, Boin et al. (2020) thus assume that the Covid-19 crises demand different utilizations of expert knowledge. This theoretical expectation has however not been tested. In the case of Dutch governance, one could deduce from this presence that the OMT plays a vital role in the shaping of government policies. However, there is thus yet no empirical evidence that expert knowledge is used differently in creeping crises like the Covid-19 crisis.

In this thesis, the use of expert knowledge in policymaking during the Covid-19 crisis will therefore be tested. To test the use of expert knowledge the following question will be questioned: “In what way is expert knowledge used in policymaking during the covid-19 crisis in the Netherlands?” To answer this question some expectations will be drawn from the literature on crisis types and expert knowledge utilization. Hereby assumptions by Boin, Ekengren, and Rhinard (2020) are tested by analyzing knowledge utilization in the covid-19 crisis. To be able to tell how knowledge is utilized, both the use of knowledge by the government and the presentation of knowledge by experts will be analyzed. Hereby a comparison can be made between the portrayal and the utilization. Also, potential reactions of experts on knowledge utilization by the government could be analyzed by this. In the methodology of this thesis, more will be said on the practicalities of the analysis.

By testing the use of knowledge in governmental policies through cross-comparing, an attempt is made to make knowledge utilization analyzable. While the literature on knowledge utilization has grown (Christensen, 2020), less has been published on how to empirically test knowledge utilization. The Covid-19 crisis here offers an opportunity because it has been a much-debated crisis with a lot of media attention for the experts that seem to have an important role within the policy debate. Hereby a vast amount of data is present to both analyze the policy decisions by the government and the input by the knowledge experts. This thesis, therefore, has academic relevance by exploring research methods for analyzing knowledge utilization.

By analyzing the knowledge used by the Dutch government in the Covid-19 crisis, this research also has societal relevance. As stated in the first section of this introduction, some experts as the OMT are thought to have an important influence in the shaping of this literature

(Boin et al., 2020). It has therefore not yet been substantiated how the government came to its decisions and how expert knowledge was used in the Covid-19 crisis, which had a profound impact on Dutch society. This research empirically tests this and can thus provide substantiation to the role of experts in the Dutch government during the Covid-19 crisis.

In this thesis knowledge utilization by the Dutch government during the Coivd-19 crisis is thus the subject of research. While Van Nispen and Scholten (2017) have earlier concluded that in earlier big crises, the Dutch government has used expert knowledge towards strengthening the legitimacy of their governance, Boin et al. (2020) suspect that expertise plays a different role in the Covid-19 crisis. Also, Boin, Ekengren, and Rhinard (2020) point to the distinguishing difference between the covid-19 crisis and the previous crises, as examined by Van Nispen and Scholten (2017). This thesis will look if these theoretical expectations can be substantiated by empirical research.

This thesis will proceed as the following. First, the different expert knowledge will be conceptualized. Here both the knowledge utilization and the different types of knowledge will be discussed. After that, the concept of crisis will be categorized to be able to distinguish the covid-19 crisis from prior crises. The final part of the theoretical framework will be used to draw expectations that will be tested in the analysis. The third part of this thesis will be the methodology. Here the research design will be elaborated on. After that, the analysis can be done and discussed. In the final part of this thesis, both the conclusion and the discussion will take place.

Theoretical Framework

In this thesis the concepts of crisis and expert knowledge are central. In this theoretical framework, both concepts will therefore be conceptualized. On the concept of crisis first different types of crises will be elaborated on. Second, the Covid-19 crisis will be deepened, because this specific crisis is central to the research question. After the concept of crisis has been elaborated on, the concept of expert knowledge will be conceptualized.

Crisis

As mentioned in the introduction, the effect of crises on knowledge utilization has earlier been researched by Van Nispen and Scholten (2017). They analyzed the utilization of expert

knowledge during the Dutch migration crises between 2000 and 2015 and the Dutch financial crises from 2008 to 2009. They did not find a difference in the utilization of expert knowledge between these two crises and the normal situation. The Covid-19 crisis falls into the same category of crisis type as these crises (Boin, Ekengren & Rhinard, 2020). It could therefore be expected that following the results by Van Nispen and Shcolten (2017), also in the Covid-19 crisis knowledge is used legitimizing by the government. However as Boin et al. (2020) point out, the Covid-19 crisis seems to have a different effect on knowledge utilization. Boin et al. notice a higher presence of expert knowledge in this Covid-19 crisis.

For the conceptualization of the concept crisis, two sources stand out for this thesis. The first source of literature is primarily by Boin and ‘t Hart (‘t Hart & Boin, 2001; Boin, Ekengren & Rhinard, 2020). Boin and ‘t Hart together and apart from each other has contributed extensively contributed on the literature of crisis management. In the literature, the link between crisis and management/governance is thus key. On top of that, they have been involved in fitting the Covid-19 crisis into the existing literature of crisis types. The literature by Boin and ‘t Hart is focused on using indicators as the onset and termination of a crisis to characterize a crisis. Because of these indicators, this literature, therefore, helps to identify a crisis. In addition, the literature by McConnell (2003) will also be used. Here McConnell’s literature adds because he elaborates more on the conditions for the different types of crisis. While the typologies are not the same, combining the conditions of McConnell with the indicators by ‘t Hart and Boin (2001) gives helpful insight in describing what determines different crises.

Types of crisis

T’ Hart and Boin thus use the characteristics of onset and closure to describe four different types of crisis. Here the onset is about how long it takes for the crisis to appear and is manifested to its surrounding (‘t Hart and Boin, 2001). In this typology by ‘t Hart and Boin, an onset can either be fast or slow. The closure is about the disappearance of the crisis, which can also be fast or slow. A fast closure means that the threat from the crisis or the effects of the crisis fades quickly. A slow closure means that the crisis lingers on and the effects or threat posed by the crisis stay around long.

The first type of crisis that is distinguished by ‘t Hart and Boin (2001) based on these characteristics is fast-burning. They describe this type of crisis as an explosive one. Its onset and closure are both indicated as being fast. From this, it follows that such a crisis is a distinct event at a decisive moment. The ‘sudden’ crisis by McConnell (2003) comes the closest to this description, being also about a swift and unexpected event. McConnell adds that governance during such a sudden event is mostly improvisation. Not much time is available to tailor an appropriate response. McConnell hereby notes that it is obvious that afterward points of improvement will be noted. Such an explosive crisis however does not lend itself for much consideration, but quickly happens and likely leaves tragedy behind.

The second type by ‘t Hart and Boin (2001) is cathartic. ‘t Hart and Boin describe this crisis to have a slow onset and a fast closure. Such a crisis thus creeps into existence until a critical point is reached. After that, the situation abruptly ends. In such a crisis either the threat is not recognized until it explodes or there can be a built-up of confrontations. In contrast to crisis types that also end slowly, the cathartic crisis assumes that the crisis moves towards a climax. Here the ‘creeping’ crisis by McConnell (2003) is most similar because that crisis type too is about a crisis that is built up slowly and moves to a climax. McConnell adds that such a crisis is sometimes first approached with a business as a usual response because the threat is not correctly recognized. This implies that knowledge of the situation is not complete.

The third type is described by ‘t Hart and Boin (2001) as a slow-burning crisis. However, in a later publication, Boin, Ekengren, and Rhinard (2020) begin to call this type of crisis the creeping crisis instead of ‘slow-burning’. According to Boin, Ekengren, and Rhinard, this type of crisis has a slow onset and a slow closure. The chronic crisis by McConnell (2003) also has these characteristics and is thus most similar to this crisis type. This crisis type is associated with a slow and sometimes nondramatic beginning. Also, the slow closure characterizes the crisis type as being able to fade away. This can be caused by a lack of understanding of the situation which leads to not being able to present a working solution to the situation (McConnell, 2003). From the theory of Boin, Ekengren, and Rhinard (2020), the creeping crisis is therefore also displayed as a crisis with much uncertainty.

The last crisis type distinguished by ‘t Hart and Boin (2001) is the long-shadow. This type of crisis has a fast onset which means that it suddenly appears like a fast-burning crisis. A dramatic event likely accompanies the appearance of the crisis. The closure of this type of crisis however is slow which characterizes the aftermath caused by the crisis. This either

means that the situation cannot easily be resolved or that the effects of the crisis will last for a long time. ‘t Hart and Boin argue that such a crisis likely is an incomprehensible incident, a mismanaged incident, or an agenda-setting incident. A long-shadow crisis has an explosive beginning and long-lasting effects.

		Closure	
		Fast	**Slow**
Onset	**Fast**	Fast-burning (e.g. 9/11)	Long-Shadow
	slow	Cathartic	Creeping crisis

Table 1: crisis types (‘t Hart & Boin, 2001)

Covid-19 crisis: a creeping crisis

According to Boin, Ekengren, and Rhinard (2020), the Covid-19 crisis is an example of a slow-burning crisis as defined by ‘t Hart and Boin (2001) which Boin, Ekengren, and Rhinard (2020) later reconceptualize as the creeping crisis. As a creeping crisis that slowly appears and its presence and its effect is long, the Covid-19 virus can also be described as being slow in onset and closure. While the virus had been around for some time in Wuhan, the first signs of a crisis became clear through the first press conference on the 12th of March 2020 (NOS, 2020a). By then, the first Covid-19 patients had already been located in the Netherlands (NU.nl, 2020) and the experts from the OMT had already been advising the government on the virus for over a month (Technical briefing, 04-02-2020). While the press conference on March the 12th signaled that the Covid-19 virus was to be taken seriously, it was not yet recognized as a crisis. Four days after the press conference, on the 16th of March, the Prime Minister again held a press conference, addressing the Dutch nation on his own and announcing the reality of the Covid-19 crisis in the Netherlands (NOS, 2020b). The Dutch society has since fluctuated between lockdown and easing (NOS, 2020d; 2020f; 2021c).

In the press conference on the 16th of May by the Prime Minister, it became clear that the Covid-19 virus was not disappearing anytime soon (NOS, 2020b). Besides the fact that the virus was relatively new and unknown to the experts, the virus was associated with the old and known viruses and diseases that have declined through vaccinations. When the

Netherlands went in a second lockdown at the end of 2020, the message was clear, vaccinations would solve the crisis (NOS, 2020f). In January 2021, the Dutch vaccination program started (NOS, 2021a). Hereby herd immunity would be eventually reached, but like the old diseases, it is expected that the virus will not completely disappear. The Dutch Covid-19 crisis thus was not immediately recognized as a crisis and the crisis will slowly be minimized through immunity. Dutch Covid-19 crisis is therefore a crisis that fits the description of a creeping crisis.

The Dutch Covid-19 crisis has also been characterized by a lot of uncertainty in governance (Boin, Lodge, & Luesink, 2020). The uncertainty that Boin, Lodge, et al. aim at, is something more than the lack of knowledge McConnell (2003) talks about. The lack of knowledge by McConnell associated with a creeping crisis is about the lack of understanding of the situation and not knowing how to act. The Covid-19 outbreak and the impact on the social lives of the Dutch citizens in the Netherlands were new and unknown. Boin, Lodge et al. (2020) argue that the immensity of the threat posed by the Covid-19 crisis caused a deep uncertainty among policymakers on how to act and that such uncertainty unique. The Dutch Prime minister further characterized this uncertainty by stating multiple times that as a government they had to make 100% of the decisions with 50% of the knowledge. This dimension of uncertainty is something that is not taken into account in the crisis typologies discussed earlier. While Boin, Ekengren, et al. (2020) characterize the Covid-19 crisis as a creeping crisis similar to the financial crisis, for example, Boin, Lodge et al. (2020) argue that the Covid-19 crisis differs from previous crises because of the uncertainty.

The uncertainty posed by the Covid-19 crisis is related to the increased use of experts by governments (Boin et al., 2020; Boin, Lodge, et al., 2020). In the Netherlands, the Dutch government for example assigned the OMT to be a governmental advisory body on the development of the virus (RIVM, n.d.). The OMT is a national advisory board for direct and more precise advice to manage the outbreak of the Covid-19 virus (RIVM, n.d.). This comity consists of all kinds of experts in numerous fields on medical care virology and national health. Some experts are permanently assigned and some are asked to contribute only when a specific subject is being treated. These experts also come from different places. The chairman of the OMT, Van Dissel, is also the director of the RIVM, the Dutch National Institute for Public Health and the Environment (RIVM, n.d.). Because this institute falls directly under the guidance of the Dutch government, Van Dissel can be regarded as an expert from within the government.

In the OMT also people from outside the government take place. Of the seven permanent members, two are aligned to Dutch medical universities, and two work for a Dutch hospital (RIVM, n.d.). The OMT is thus not a governmental advisory board, but some of its members come from inside of the government. Together this comity draws advice for the Dutch government. They have done so since they have been appointed by the Dutch government in January 2020 (RIVM, n.d.). While the OMT was not the only group of experts, it has been an important advisory board throughout the whole Dutch Covid-19 crisis.

The Covid-19 crisis can thus be described as a creeping crisis with a lack of knowledge and uncertainty. On the latter characteristic, the uncertainty, Boin, Lodge et al. (2020) argue that this crisis differs from previous crises. Following, the crisis management of the Covid-19 crisis is also theorized to be different, with the presence of expert knowledge being more prominent than before (Boin et al., 2020; Boin, Lodge, et al., 2020). The uncertainty caused by the crisis is therefore hypothesized to have resulted in advisory groups contributing knowledge differently to the policy debate than in other situations. In the following section, the theory on expert knowledge will therefore be elaborated on to dive deeper into the theoretical relation between governments and expert knowledge utilization.

Expert Knowledge

The second concept central to this thesis is the concept of expert knowledge. More specifically, in this thesis, the role of experts is researched by focussing on how their expert knowledge is utilized by the government. There exists an extensive amount of literature on the role of experts and expert knowledge within academics. Christensen (2020) has written an overview of the different parts of this domain. On the theory of expert knowledge, Christensen (2020) distinguishes two domains within the literature. The first focuses on evidence-based policymaking and studies solely on the influence of expert knowledge on governmental policies. The second approach focuses on the modes of knowledge utilization within policymaking. This focus does not only study the influence of expert knowledge, but also the different types of utilization of expert knowledge. In this thesis, the aim is to find what role knowledge has played within the policymaking process (of the Covid-19 crisis). In this thesis, the influence of expert knowledge on the policymaking process, as in the first view by Christensen (2020), will not be analyzed. In this thesis, the objective is on determining how

expert knowledge is used by policymakers. Here the second view described by Christensen suits better and will thus be used.

For this second view, Christensen (2020) names the theories by Radaelli (1999), Boswell (2008), and Schrefler (2010). All three theorize on a difference between symbolic and instrumental use of knowledge. Here Radaelli (1999) focuses on the supply side of the expert knowledge debate. Boswell (2008; 2009) on the other hand, theorizes more on the relation between expert knowledge utilization and policymaking. Boswell proposes three perspectives to the utilization of knowledge: instrumental, substantiating, and legitimizing. As a third, Schrefler (2010) in her literature also uses similar perspectives as Boswell and adds to the theory by developing a different hypothesis based on the different types of knowledge utilization. In this thesis, not solely the supply, but more the actual use of expert knowledge is the focus. Here the literature by Boswell (2008) and Schrefler (2010) thus possesses useful insights. In the next paragraph, the different types of expert knowledge will first be elaborated on. Here the literature by Radaelli (1995) will primarily be used. After the different types of knowledge have been conceptualized, the different types of expert knowledge utilization can be conceptualized.

Types of expert knowledge

Van Nispen and Scholten (2017) in their research primarily focus on the relation between knowledge utilization and the crisis. They do not elaborate on the types of knowledge present in the policymaking process. However, as Boin et al. (2020) point out, numbers have played a big role in the decision-making during the Covid-19 crisis. With ‘numbers’ Boin et al. refers to the data that was daily updated about the number of intensive care patients in hospitals or the number of infected with the virus. These numbers played an important role in governmental decisions to tighten or relax the measures during the crisis (Boin et al., 2020). The numbers, a specific type of data, are thus argued to have been utilized prominently during the Covid-19 crisis.

Numbers are however not the only type of expert knowledge. Radaelli (1995) describes three types of knowledge. He thereby also relates a specific type of actor and political arena that is theoretically associated with expert knowledge. This theoretical link between types of knowledge and types of actors enables to specify the prediction of knowledge utilization based on the appearance of certain actors in a policy debate.

The first knowledge type is the information data (Radaelli, 1995). This knowledge comes from academics in universities. It is therefore more a science-based knowledge that stems from an academic field. Also, the positioning of the academics illustrates some distancing of the knowledge provider to the politics. This knowledge is according to Radaelli mostly provided within a depoliticized arena where governance seeks to make informed decisions.

The second type distinguished by Radaelli (1995) is the ideal type of knowledge. This type of knowledge is already less objective than the 'information data'. This type characterizes knowledge that originates in academics but has political means. The ideas are therefore also found by actors as academics in government, think tanks, and idea-brokers. These actors use knowledge for their own sake in a policy debate. The corresponding arena where such knowledge can be found is therefore a political debate. Radaelli (1995) describes as an example a situation where there is uncertainty, a crisis, or a new policy area.

The third type is argumentative knowledge (Radaelli, 1995). This type of knowledge can be found among policy advocates that lobby for certain policies. They use specific sources of knowledge to build up an argumentation in their favor. Such knowledge is thus mostly subjective. Actors with this kind of knowledge can be found within for example zero-sum games where winning a debate is key.

Knowledge 'What'	Actors/experts 'Who'	Arenas 'Where'
Information data	Academics in universities	Sophisticated depoliticized arenas
Ideas	Academics in government, Think-tanks, and Idea brokers	Uncertainty, Crisis management, Policy revamping, and New policy areas
Argument	Experts operating within advocacy coalitions	Zero-sum games, Post decision-making and Learning across coalitions

Table 2:Types of knowledge (Radaelli, 1995)

Expert knowledge utilization types

Besides the different types of knowledge, also different modes of knowledge utilization can be distinguished. Some researchers have established that knowledge has seldom a direct impact on policymaking (Weir & Skocpol, 1985; Walsh, 2000). However, in the recent study by Van Nispen and Scholten (2017) expert knowledge was found to have been used by the Dutch policymakers during two recent crises in the Netherlands. Boswell (2008; 2009) also theoretically argues that expert knowledge does have a role within policymaking. Expert knowledge has recently become more important. Boswell (2009) argues that in these times of neo-institutionalism, governments are constantly seeking legitimacy in relation to society. For governments, it is important to have the legitimacy to for example justify their decisions and to gain support for their governance. Boswell (2009) thus argues that knowledge has an important symbolic or political function within policymaking.

The symbolic use of expert knowledge is however not the only type of utilization according to Boswell (2008; 2009). She distinguishes two main types of knowledge utilization: instrumental and symbolic. The symbolic category is further differentiated into the categories legitimizing and substantiating. Boswell however is not the only one to develop a framework on different utilizations of expert knowledge. Schrefler (2010) also has constructed a categorization, but this categorization is slightly different. Schrefler names three main categories: Instrumental, symbolic and strategic. She further differentiates strategic into substantiating and political. While these categories differ by name, they are inherently similar, because Schrefler uses Boswell's categories as a base for her conceptualization. From the categories that differ by name, respectively the symbolic and substantiating categories by Schrefler are the same as the legitimizing and substantiating categories by Boswell. The additional political category by Schrefler is more about the position of actors within the political arena than about the use of expert knowledge. Therefore will this categorization be ignored within this thesis.

While these categories are similarly conceptualized in these two literature sources by Boswell and Schrefler, both authors use different means to categorize the different knowledge utilization types. Boswell (2008) uses indicators to situate the types: on the organizational structure of the organization, the relation between politics and science, and the interest to publicize the used expert knowledge by the organization. Schrefler (2010) on the other hand uses two scales to categorize the utilization of expert knowledge. These scales are the level of

conflict and the level of tractability. A situation with a low level of conflict is defined by Schrefler as a policy process where policymakers disagree on what should be done. The level of tractability categorizes the situation on how much scientific knowledge exists on the issue. A policy problem that has a low level of tractability means that scientific knowledge is not available for the policy problem. Schrefler (2010) argues that different situations can be defined according to these scales and that in these different situations, expert knowledge is utilized differently.

The first use of expert knowledge in both pieces of literature is instrumental (Boswell, 2008; 2009; Schrefler, 2010). Knowledge in this instrumental perspective is seen as something non-ambiguous (Boswell, 2009). This instrumental view on knowledge sees knowledge as something that only can help build and create new and better insights. Organizations, where knowledge is used instrumental, are associated with using performance targets (Boswell, 2008). To achieve this policymakers and politicians have a big interest to use scientific research provided by the experts (Boswell, 2008). The instrumental perspective on the utilization of scientific knowledge thus proposes the view that knowledge primarily informs policymaker's decisions and enhances the organizational output.

According to the categorization by Schrefler, instrumental use of expert knowledge occurs when there is a low level of conflict among policymakers (Schrefler, 2010). There is thus not disagreement over policy values or goals among the involved actors. This also means that policymakers and politicians are interested in intensively using research (Boswell, 2008). Considering the second scale by Schrefler, the instrumental use of expert knowledge should either be found in situations where scientific knowledge already exists or is lacking (Schrefler, 2010). The level of tractability does not matter according to Schrefler, but as argued by Boswell (2008) demand for expert knowledge is needed. From this the first expectation can be drawn:

- *Expectation 1: instrumental use is found in a situation with a high or low level of tractability and a low level of conflict.*

The second view on knowledge utilization is described by Boswell (2008; 2009) as legitimizing or as symbolic by Schrefler (2010). This type sees expert knowledge as a source for creating legitimation. This can be achieved by explicitly presenting knowledge and by reproducing established sources (Boswell, 2008). Because there is not an intensive interest to improve

through the utilization of knowledge, legitimizing knowledge utilization is associated with organizations that have looser ties to scientific research (Boswell, 2008). The knowledge that is used here is not meant to create informed policies or improve policymaking. The focus of the utilization is to improve or to create validity as an organization. The gained legitimacy in turn is also not meant to improve the performance of the government, but as a purpose on its own (Boswell, 2008). The (presence of) knowledge is thus meant to create a legitimizing effect for the policies that have been crafted with it.

The legitimizing utilization of expert knowledge is likely to occur in a situation where there is disagreement by actors on what should be done and where scientific knowledge is lacking for the problem at stake (Schrefler, 2010). Because of the high level of conflict present, actors aim to create support. They, therefore, try to gather knowledge to build their policies to legitimize their governance or decisions. Actors that want to create legitimacy in relation to their environment through the use of knowledge, are therefore also keen on publicizing their used expert knowledge (Boswell, 2008). As argued by Schrefler (2010), the second expectation is thus:

- *Expectation 2: legitimizing use is found in a situation with a low level of tractability and a high level of conflict.*

The third perspective on the usage of knowledge is substantiating (Boswell, 2008; 2009; Schrefler, 2010). Similar to the legitimizing view, the substantiated view sees the use of knowledge as symbolic (Boswell, 2009). However the symbolic use is not towards creating a legitimate organization, but to create support for certain predetermined actions of the organization (Schrefler, 2010). Decisions and actions are not based on expert knowledge, but specific knowledge is gathered to support the decisions and actions. The substantiating view thus uses knowledge only to justify the already proposed actions and solutions by the organization.

Such knowledge utilization is associated with a similar situation as the legitimizing use of knowledge. However, in contradiction to the legitimizing view, the substantiated use of knowledge is found in situations where expert knowledge already exists on the problem (Schrefler, 2010). This high level of tractability allows actors to choose expert knowledge to justify their decisions. To justify the decision to their environment, the actor can also tailor the publication of expert knowledge to specific actors in their environment (Boswell, 2008). The

substantiated knowledge use can thus be found in a political arena where actors try to justify their preferred approaches (Schrefler, 2010). The expectation on finding substantiating knowledge is thus the following:

- *Expectation 3: substantiating use is found in a situation with a high level of tractability and a high level of conflict.*

		Level of tractability	
		High	Low
Level of conflict	Low	Instrumental use (routine)	Instrumental use (geared toward learning)
	High	Substantiating use	Legitimizing use

Table 3: knowledge utilization types (Schrefler, 2010)

The Covid-19 crisis and knowledge utilization

These different types of knowledge utilization can according to Schrefler (2010) thus be predicted based on the level of tractability and conflict in a situation. Different situations thus are associated with different knowledge utilization. If for example the level of conflict increases in a situation, Schrefler argues that the knowledge utilization hereby will also move towards a different type of knowledge utilization. The development of a situation thus influences how knowledge is utilized.

In a crisis such as the Covid-19 crisis in the Netherlands, also development can be noticed. As already mentioned in the paragraph on the conceptualization of the Covid-19 crisis, the crisis changed several times in shape. It went from a lockdown period to a relaxed period to again a lockdown period (NOS, 2020d; 2020f; 2021c). Also, the knowledge of the virus evolved, and new variations of the virus were discovered (Time, 2021). In the analysis, the differences between various periods of the Covid-19 crisis will be more precisely characterized. However, based on the theory by Schrefler (2010), it can already be expected that the different periods of the Covid-19 crisis will be associated with different types of knowledge utilization. Therefore, following the theory of Schrefler, four different expectations can be made on the associated knowledge utilization in the four different situations which can be found in Table 3.

Based on the factor of the arenas and the experts in Radaelli's theory, expectations can also be drawn on the type of knowledge in the Covid-19 crisis. As has been argued already, the OMT and the RIVM can be seen as important experts during the Covid-19 crisis. While not all of the individual experts within the OMT were before the crisis academics within government, the expert groups have however been positioned as advisors within the government and towards parliament. Based only on the factor of actors, one would thus expect the ideas to be the main type of knowledge within the Covid-19 crisis. While the experts during the Covid-19 are mostly similar, the Covid-19 crisis has differed over time, so the arena has also likely changed during the crisis. It can therefore not be argued that the Covid-19 crisis can only be associated with one particular arena from the theory by Radaelli. However, the arenas distinguished by Radaelli can also be seen as different crises or periods.

To characterize a crisis and distinguish which type of political arena is similar, Schrefler's (2010) level of tractability and level of conflict can be used. The first type of arena by Radaelli (1995) is the 'Sophisticated depoliticized arenas'. As the naming predicts and as Radaelli describes, such a political arena is associated with a lack of political debates and thus with a low level of political conflict. Radaelli describes that in such an arena information data as a type of knowledge is present. While such an arena is associated with information data, Radaelli does not explicate the status of available knowledge. The level of tractability can in such an arena thus either be high or low. From this the following expectation can be formulated:

- *Expectation 4: information data is found in a situation with a low level of conflict.*

The second arena by Radaelli (1995) is an arena associated with crisis management, uncertainty, and new policy areas. This arena sees the use of ideas as the prominent type of knowledge. Applying the theory of Schrefler (2010), this arena can easily be associated with a low level of tractability, as in this arena uncertainty of governance comes out the most. On the level of conflict, however, Radaelli (1995) does not clarify if in this arena the crisis management is associated with a political struggle or unity. This is thus in contrast to the previous type of arena where the level of conflict was clear and the level of tractability was not. Ideas are thus found among low levels of tractability as described in the following prediction:

- *Expectation 5: ideas are found in a situation with a low level of tractability*

The third arena that Radaelli (1995) describes is associated with zero-sum games and post-decision-makings. In this arena, mostly arguments as knowledge are found and advocacy coalition as the main experts (Radealli, 1995). In a political situation associated with zero-sum games, winning is key and the level of conflict is high. Also, as this arena is conceptualized as being based around arguments as the prominent knowledge type, knowledge is important but does not have to be objective (Radaelli, 1995). The level of tractability is therefore not important. the expectation on finding arguments is as follows:

- *Expectation 6: arguments are found in a situation with a high level of conflict.*

Following these classifications, three expectations can be drawn on the type of knowledge from Radealli (1995) and the level of tractability and conflict (Schrefler, 2010). These expectations will be tested in the analysis of this thesis. A first, in a crisis with a low level of conflict, information data as knowledge should be found. Second, in a crisis situation with a low level of tractability, knowledge is found as ideas. Last, in a crisis with a high level of conflict, arguments are the type of knowledge used within the political debate.

Methodology

In the theoretical framework, expectations were drawn about the knowledge types and knowledge utilizations present during the Covid-19 crisis in the Dutch policy process. Before these expectations can be tested, first the research design must be elaborated on. This will be done in this paragraph.

While the literature on knowledge utilization in policymaking has increased, not much research exists that empirically tests knowledge utilization within governments. (Christensen, 2020). Christensen dedicates this to the question of the validity of such research. Because one is not able to analyze how a policymaker processes knowledge in his or her head and internal memo's from the government are not public, the analysis on knowledge utilization is drawn on the output when the utilization has already taken place (Christensen, 2020). The research by Van Nispen and Scholten (2017) is an example of a research that has accomplished to derive knowledge utilization from governmental documents. They can conclude that knowledge has been used legitimizing during two past crises in the Netherlands. They have done supposedly

so by only using government documents. However, as Christensen argues (2020) after the process of knowledge utilization by policymakers has taken place, it becomes harder to analyze how knowledge has been put to use.

In the Dutch Covid-19 crisis, some experts that have advised the government, have also played a role in briefing the Dutch parliament. The expert knowledge that has been contributed to the policy process, has also in some way been publicized. Hereby not only the output of the policy process can be analyzed, but also the knowledge that was contributed to the policy process can be analyzed. Hereby it becomes possible to compare output and input to gain a richer understanding of how expert knowledge has been used. In addition to comparing documents of experts and government, multiple periods will be used to further enhance the understanding of the presence of knowledge and knowledge utilization throughout the Covid-19 crisis.

Material for the analysis

For this period a combination of government documents and sources with expert contributions are analyzed in three periods. While a lot of periods in the Dutch Covid-19 crisis can be distinguished and a lot of them could be interesting to be analyzed. Three periods are chosen that stand out in my opinion. The first period that will be analyzed is positioned at the onset of the Covid-19 crisis in the Netherlands. This is thus around the time when the Dutch Prime Minister on television announced that the whole Dutch society had to go into an intelligent lockdown (NOS, 2020b). This period is interesting because it is at the beginning of the Covid-19 crisis. At that moment, the Covid-19 virus was still new and the policymakers were faced with uncertainty (Boin et al., 2020). Because of this, it can be expected that expert knowledge played a vital role in supporting the government with their expert knowledge, as can be derived from the position Van Dissel, Chairmen of the OMT received during the first press conference (NOS, 2020a). This first period thus provides insight into the presence and use of expert knowledge in the first stages of the Covid-19 crisis in the Netherlands.

In this first period, several government documents are available on the decision-making of the lockdown initiated in March 2020 (NOS, 2020b). These documents can give an insight into how the government has substantiated its decisions for a lockdown. Because these documents lagged behind the press conferences, the timeframe for this period ends sometime

after the press conference on the 16th of March 2020. As a source of expert knowledge from this period, the Technical briefings on the Covid-19 virus will be used. The first Technical briefing was held on the 4th of February 2020 and has thereafter taken place regularly. Because of this the timeframe for this period already begins on the 4th of February 2020. In these Technical briefings the OMT, RIVM, and occasionally other experts, have updated members of parliament on Covid-19. Because some of the experts in these technical briefings have also acted as advisors to the Dutch government (RIVM, n.d.), the knowledge contributed in these briefings can be compared to the output in the government documents.

The second period that will be analyzed is the period around the first relaxations of Covid-19 measures in the Netherlands. In this period of crisis, the Dutch government announces the first relaxation of the measures against the Covid-19 virus (NOS, 2020d). Also, the wearing of face masks in some public spaces is made mandatory (NOS, 2020d). This latter policy received criticism both from parliament and society (NOS, 2020c; 2020d; Rijnmond, 2020). Even more, the government had earlier in April 2020 stated that the wearing of face masks was not needed (NOS, 2020c). They thereby substantiated that claim based on the advice of the RIVM and OMT. Both the decision to make wearing face masks mandatory in some public spaces and the first relaxations of Covid-19 measures, provide for interesting policies to analyze on the use of expert knowledge.

Similar to the first period, in this period government documents and technical briefings will be used as research material. For the government documents, only documents about the relaxation and the facemask policy will be used to limit the amount of material. On the time frame used for the gathering of material, documents ranging between April 2020 and early June 2020 will be used. This is because the decisions on the relaxations and facemasks are made public in mid-May 2020. It can therefore be assumed that expert knowledge on which the policy decisions are made, is to be found in the Technical briefings before the decisions.

The third period that will be analyzed is around the introduction of the national curfew in January 2021. The curfew was implemented because of the likely emergence of the British Covid-19 variant (Ministerie van Algemene Zaken, 2021). While even the government was not a huge supporter of the implementation of a curfew, the decision was argued to be necessary (Trouw, 2021; Tweede Kamer der Staten-Generaal, 2021, from 3:49:15). Hereby the OMT was portrayed as an important figure leading to this policy proposal (Trouw, 2021). It is interesting to analyze whether the OMT has had such an important influence on the creation of the

curfew policy. In addition to the government documents and the Technical briefing, also a Parliamentary debate will be used. Because the curfew has been decided in a short time, not a lot of government documents exist. Therefore the arguments and the substantiations given by the ministers in the debate will be used to analyze the knowledge utilization. Also because of the shortness of time the policy has been decided upon, the timeframe for this period ranges only from January 2021 to early February 2021.

Research method (quantitative and qualitative)

The documents will be analyzed both qualitative and quantitative. First and foremost, the analyses will be qualitative. The documents will be analyzed using qualitative data analysis. Using the Open Source Software Taguette (Rampin, Rampin, & DeMott, 2021), pieces of text in the documents can be marked. After the documents have been processed, information can be gathered using the markings. All of the used documents thus have to be read for the analysis. This does provide for an in-depth understanding of both the knowledge provided in the Technical briefings and the government documents.

Second, also a quantitative analysis will be used. The markings made during the qualitative analyses are themed and can therefore be used for descriptive statistics. By exporting these results to Excel and summing grouping the themes, information about the occurrences of concepts in documents is obtained. These statistics help substantiate the claims made with qualitative data. With the qualitative data, it will be possible to argue which knowledge type or knowledge utilization can be derived from the documents. With the quantitative data, the possibility arises to make claims on the share of certain knowledge types in the documents. Together, both types of analysis will thus be used to build a case for knowledge utilization in the three different periods.

Operationalization of the concepts

In the qualitative analysis, the concepts of knowledge types and knowledge utilization will be searched for in the documents. To increase consistency and maintain the reliability of this thesis, the concepts will be operationalized here. Corresponding to the order from the theoretical framework, first, the concept of knowledge types will be dealt with.

Types of knowledge

Here three different knowledge types were distinguished: Information data, Ideas, and arguments. The first type of knowledge comes from academics (Radaelli, 1995) and can be recognized when research results are cited in the documents. These results can be statistics or conclusions, but not open hypotheses or thoughts from discussion in research papers. Information data is about what has been found. As will be shown later, expectations are better regarded as ideas. In this thesis, what is understood as research will be taken broader than only academic publications. This is not only because research used by experts during the Covid-19 crisis were sometimes working papers Boin et al. (2020). During the Covid-19 crisis Governmental organizations like the RIVM also published daily numbers on for example the number of infected. These numbers can be also be seen as results from ongoing research into the outbreak of the virus in the Netherlands with preliminary results. Information data will thus be recognized through the presence of statistical data or the reciting of conclusions from the research.

On the other side of the spectrum, we described the form of knowledge arguments. This knowledge is political and does not depend on objective knowledge. Here persuasiveness is more important than what is true and is associated with advocacy coalitions (Radaelli, 1995). Such knowledge can be recognized when an actor is persuasive. On such an occasion, information can also be present at the same time, but in argumentative knowledge, the information data will be politicized. Another way to be aware of argumentative knowledge is that is associated with heavily politicized debates (Radaelli, 1995).

The last type of knowledge discussed in the theoretical framework is ideas. Radaelli (1995) describes that this knowledge resides between politics and academics. It can therefore be seen as residing between information data and arguments. Ideas rely upon information data to shape a possible insight (Radaell, 1995). As stated earlier, non-concluded hypotheses or newly formed expectations in discussion in research can be recognized as ideas. More indirect formed expectations based on the expertise of an expert will hereby also be categorized as ideas.

Knowledge utilization types

Also for knowledge utilization, three types have been distinguished in this thesis: instrumental, legitimizing, and substantiating. These types of knowledge utilization will be

assigned to a period only after the text has been analyzed. The types of knowledge utilization will thus not immediately be marked within the texts. Based on the markings within the Technical briefings and the government documents, a case will be made for a type of knowledge utilization. To draw consistent conclusions, the types of knowledge utilization will now be operationalized.

The first type of knowledge utilization distinguished in the theoretical framework is instrumental use. Expert knowledge used as such is used as it is meant and provided by the experts (Boswell, 2008; 2009; Schrefler, 2010). Boswell (2008) argues that this use is also associated with a good relationship between the expert and the government. Expert knowledge is hereby important in shaping the policy. Based on this, instrumental knowledge utilization can be noticed when the expert knowledge has been copied into the policy or when there is little contradiction expressed by experts with the policy output (Boswell, 2008).

Other than instrumental use of knowledge, legitimizing knowledge serves the purpose to create legitimacy for the government (Boswell, 2008; 2009). Because of this, the government will actively mention the use of expert knowledge. However, as the aim of knowledge use is about creating legitimacy, expert knowledge is not copied into the policy, but rather a selection is made of what knowledge is deemed important by the government and what is not (Schrefler, 2010). Experts are therefore likely to express some disagreement about the prioritizing by the government of only some of their knowledge.

Last, and similar to legitimizing use, substantiating knowledge utilization can be distinguished. Theoretically, this knowledge utilization is associated with situations where the government already has taken a decision and expert knowledge is used to substantiate that decision (Boswell, 2008; Schrefler, 2010). While expert knowledge is used and displayed in such a situation by the government, the producers of the expert knowledge can disagree with the government's decisions. Such knowledge utilization can thus be derived when experts and government disagree in conclusion based on the same knowledge.

Period		Document source	
		Expert briefings	Cabinet decision explanations
Case 1	Early February to mid-March 2020	• Technical briefing OMT from: 04-02-2020, 03-03-2020, 10-03-2020, 18-03-2020 and 25-03-2020	• Update letter from the minister of Health on: 10-03-2020, 12-03-2020 and 20-03-2020 • Answers to question from parliament by the minister of Health: 25-03-2020
Case 2	Late April to early June 2020	• Technical briefing OMT from: 22-04-2020, 07-05-2020, 20-05-2020	• Update letter from the minister of Health: 06-05-2020, 03-06-2020 and • Answers to question from parliament by the minister of Health: 06-05-2020, 07-05-2020 • Letter to a commission of the Dutch Senate: 18-05-2020
Case 3	Early January until mid-February 2021	• Technical briefing OMT from: 13-01-2021, 20-01-2021, 04-01-2021 and 24-02-2021	• Update letter from the minister of Health: 31-12-2020 and 12-01-2021 • Reaction to OMT advice: 17-01-2021 and 20-01-2021 • Parliament debate: 21-01-2021

Table 4: an overview of used documents for the analysis. See Appendix A for full references to the used documents.

Analysis

As announced in the methodological framework, three cases will be analyzed. The documents that are used within these periods can be found in Table 4. Summarizing the periods that will be analyzed, the first period is in which the Covid-19 virus was acknowledged as being a threat to the Dutch society. While the Dutch intelligent lockdown was stated on the 18th of March, the documents used to analyze this period range from early February to mid-March. The second period that will be analyzed is the period in which the first measures against the pandemic were let go of and the wearing of face masks was made mandatory in some public spaces (NOS, 2020d). These decisions can be expected to have been based on advice and debates before the announcement, but can also be expected to have been debated after the announcements. To analyze the knowledge types and knowledge utilization in this period, documents ranging from Late April to early June will therefore be used. The third period that will be used in this thesis, is when the national curfew was introduced. This decision was made public on the 19th of January 2021 and was instated on the 23rd of January 2021. This decision

was accompanied by debates in parliament (Trouw, 2021; Tweede Kamer der Staten-Generaal, 2021). To analyze this period on the knowledge type and use, documents and briefings from late December 2020 until early February 2021 will be used.

		Amount of words per period (relative to the total amount of words)		
		1	2	3
Type of knowledge	Ideas	217	839	2255
	Information Data	597	1808	3485
	Arguments	0	20	0
Relative amount based on the percentages of individual texts		9% (Table 6)	6% (Table 7)	16% (Table 9)

Table 5: Percentage of knowledge found per period

The first period (February to mid-March 2020)

This first case of this analysis is situated at the onset of the crisis. In this period the Covid-19 virus is first discussed as something based in Wuhan, China (Technical briefing, 04-02-2020). During the following technical briefings the first Dutch citizens infected with the Covid-19 virus are discovered (Technical briefing, 03-03-2020; NU.nl, 2020). From the moment the first patient is introduced in the Netherlands, the experts in the technical briefings start to announce measures to limit the spread of the virus (Technical briefing, 03-03-2020; Technical briefing, 10-03-2020). At the onset of the Covid-19 pandemic, a change in narrative can thus be noticed among experts. Whereat first the virus did not seem to pose a threat to the Dutch society, in the later briefings of this period it becomes clear that a pandemic is unavoidable (Technical briefing, 25-03-2020).

The Covid-19 virus was a new and unknown virus to society. After the outbreak of the virus in Wuhan, China, experts have followed the progress of the virus (Technical briefing, 04-02-2020). From the technical briefings, it can be noticed that the OMT is constantly learning new things about the virus (Technical briefing, 03-03-2020, p.3). This knowledge development is constantly shared with the politicians during the Technical briefings and with the government. This shows the dependency of the government and the politicians on the experts for information on the outbreak of Covid-19. From this, it logically follows that the government

is evenly or less informed on the Covid-19 virus than the experts. The level of tractability in this period is thus low.

The politicians and the government thus depend on the experts for information on the virus. From the government documents and from the Technical briefings it follows that the government and the politicians are curious about new information. Politicians mainly ask clarifying questions during the technical briefings (Technical briefing, 04-02-2020; 03-03-2020; 10-03-2020). Only in the two latest briefings of this period some critical notes can be heard from politicians on the proposed measures by the OMT and RIVM. This is for example with politician Baudet that argues that a total lockdown is a better option (Technical briefing, 18-03-2020, p.23). These critical voices however are not greater than the support of the other politicians present at the briefings. Most present politicians at the briefings seem to support the proposed measures from the OMT and the RIVM. The level of conflict is therefore low.

The first period (early February to mid-March 2020)					
Document	**Total words**	**Sum of Ideas**	**Sum of Information Data**	**Total words on knowledge**	**% of words on knowledge to total**
20-03-25 Answers to Parliament	1257	70	93	163	13%
20-03-20 Update letter	2827	0	230	230	8%
20-03-12 Letter measures	5077	103	230	333	7%
20-03-10 Update letter	1332	44	44	88	7%
total		217 (27%)	597 (73%)	814	9%

Table 6: Statistics on the knowledge types in the first period

Knowledge types (information data and ideas)

In this period of the crisis, both experts and government are thus still learning about the Covid-19 virus. This could suggest that informative knowledge is present both in the Technical briefings and the government documents. This indeed follows from a quantitative analysis of government documents on knowledge types. 73% of the text on knowledge is about information data in the first period (Table 6). The other 27% of the text is on ideas (Table 6). On average in the government in this period, 9% of the text in the government documents is about knowledge.

From the previous quantitative results, information data is thus used the most. An example of information data in the documents is the presentation of confirmed Covid-19 cases in the Netherlands (Letter with measures, 12-03-2020, p.12). This knowledge is on statistical information regarding the Covid-19 virus outbreak. Another example of statistical data is the information about the available intensive care in the Dutch hospitals (Update letter, 20-03-2020, p.2). Information data in the government documents are also found as knowledge gained from scientific research or empirical analysis. This is the case with information on the health risks posed by the virus to vulnerable risk groups (Letter with measures, 12-03-2020, p.12). In government documents, information data is thus found on multiple occasions and in different forms.

Also, knowledge as ideas is found in the government documents in this period. An example of ideas in this period of the crisis is about the manifestation of the Covid-19 virus in the Netherlands. In the government documents, it is sketched how the outbreak is expected to behave together with the measures against the spread of the virus. This knowledge is also found in the Technical briefings where Van Dissel bases his knowledge both on characteristics of the virus and his expertise with earlier viruses (Technical briefing, 04-02-2020, p.2; 10-03-2020, p.16). The combination of expert insight and information data makes this an example of ideas. The occurrence of such knowledge in the government documents is however less than information data in this period (Table 6).

Knowledge utilization (instrumental and substantiating)

Following the type of knowledge that can be noted from the expert briefings, something can be said about the knowledge utilization by the Dutch government. In the first Letter on measures (10-03-2020, p.1) the influence of the OMT is emphasized. The experts of the OMT

were asked to brief the government on the development of the Covid-19 virus worldwide and in the Netherlands. This shows that the government themselves lacked the knowledge by themselves in regards to the virus. In addition, the initial lack of knowledge can also be noted from the fact that Van Dissel was present in one of the first press conferences of the Dutch government to enlighten the public on the crisis caused by the Covid-19 virus (NOS, 2020a).

From the previous section on knowledge types in this period it followed that both information data and ideas were used as knowledge by the government. From the analysis on the utilization of knowledge by the government, two types of knowledge utilization can be derived. First, instrumental use of knowledge can be noted. The instrumental use of expert knowledge is most clear in the description of the Covid-19 virus itself. In the Government letter on March the 10th the OMT is exclusively named as the source for initially describing and updating the Dutch government on the Covid-19 virus (Update letter, 10-03-2020, p.1). The instrumental use of expert knowledge also can be noted from for example the hygiene measures and physical distancing of people implemented by the government. These measures were argued effectively against the contagious viruses by the experts as can be noted from the technical briefings in this period (Technical briefing, 10-03-2020, p.2). This advice is copied by the government into the first package of Covid-19 measures by the Dutch government (Letter with measures, 1203-2020, p.2). This information is thus instrumentally used by the government to make effective policies against the virus.

The instrumental use of knowledge can also be noted from the substantiation of the choice for an intelligent lockdown. This becomes clear from the argumentation “With these measures, the government wants to protect the health of vulnerable people, keep the capacity in hospitals manageable, and control the spread of the coronavirus as much as possible” (Update letter to Parliament, 20-03-2020, p.1). Van Dissel and Gommers had also previously stressed the importance to control outbreak to minimize the stress on the healthcare system: “Try to control as much as possible: try to titrate to below the necessary IC capacity, with of course room for what is needed in terms of IC capacity anyway” (Technical briefing, Van Dissel, 18-03-2020, p.10). The motivation by the government is similar to the earlier given advice by the experts.

In addition to the instrumental utilization of knowledge, also a symbolic use of expert knowledge can be noted. This is when the government argues on the increase of the intensive care capacity in the Dutch hospitals. Here the government displays are more positive image

on the capabilities to further increase the capacity than Gommers, Chairmen of the Dutch association for Intensive Care. Minister De Jonge wrote “We are now focusing on upscaling to 2000 IC beds ... . This number can grow further if necessary” (Update letter, 20-03-2020, p.2). Two days prior Gommers had commented in a technical briefing that the then-current limit was 1500 IC beds, and that they would be able to scale to 2000, but that they still had no prospect on appliances for these 500 extra IC beds (Technical briefing, 18-03-2020, p.28). Five days after the update letter by De Jonge, Gommers repeated his doubts on the upscaling beyond 2000 IC. He said that appliances to care for the IC patients are not the limiting factor, but that the Dutch Healthcare system, the personnel would not be able to handle that situation (Technical briefing, 25-03-2020, p.26-28). The rosier view by the government shows also a substantiating use of knowledge because the expert knowledge is used to frame a more calming prospect for society. In this period mostly instrumental use, but this also a substantiating use of expert knowledge can be found.

The second period (mid-April to early June 2020)

The second case for this analysis is around the time that the first relaxations of Covid-19 measures are announced by the government. Hereby the end of the first lockdown was preluded that had been effective since mid-March 2020. These relaxations can be found in the Update letter by the government on the 6th of May 2020. In addition to the relaxations, the government also introduces a policy that makes it mandatory to wear face masks in some public places. On this policy, government, politicians, and experts differ in opinion about the effectiveness and therefore the usefulness of wearing face masks in public (Technical briefing, 07-05-2020, p.34). While the government portrays this policy positively in the Update Letter from the 6th of May 2020 (p.11), in multiple technical briefings politicians express dissatisfaction with the policy (Technical briefing, 07-05-2020; 20-05-2020). Because of the critique on the face mask policy, an increased level of conflict can be noted in this period.

In this period of the crisis also an increased level of tractability can be noticed. However, this can only be made up from the Technical briefings. During the Technical briefing politicians for example elaborate on the development of tools for monitoring Covid-19 with patients (Technical briefing, 07-05-2020, p.23). Also, politicians are seen to use other knowledge sources to dispute the knowledge provided by the experts at those briefings (Technical briefing, 07-05-2020, p. 29). In comparison to the first analyzed period, politicians

in this period thus also contribute knowledge to the debate. From the government documents, an increased level of tractability is less noticeable. While it would be a logical assumption that the government has learned since the onset of the Covid-19 crisis, it is hard to prove. From the quantitative analysis, a decrease in knowledge is noticed in comparison to the first period (Table 5). Also, the experts from the OMT and RIVM are 14% less called by in the documents when compared to the first analyzed period (Table 8). However, as argued by Schreffler (2010), the less presence of experts could also mean that there is intensive cooperation between the government and the experts and instrumental use of expert knowledge. While the level of tractability is less noticeable from the government documents, from the Technical briefing it does follow that politicians have an increased understanding of the Covid-19 virus.

The second period (mid-April to early June 2020)					
Document	**Total words**	**Sum of Ideas**	**Sum of Information Data**	**Total words on knowledge**	**% of words on knowledge to total**
20-05-06 Reactions to Parliament Questions	4238	19	280	299	7%
20-05-18 Answers to Senate	2340	32	74	106	5%
20-06-03 Update letter	16688	212	608	820	5%
20-05-06 Update letter	18105	576	846	1422	8%
total		839 (32%)	1808 (68%)	2647	6%

Table 7: Statistics on the knowledge types in the second period

	OMT	RIVM	TOTAL	Relative total words	
Period 1	12	26	38	0.003621462	100%
Period 2	44	85	129	0.003118126	86%
Period 3	228	115	343	0.005269465	146%

Table 8: Statistics on citations of experts in government documents

Type of knowledge (Information data and Ideas)

In the government documents, experts from the RIVM and the OMT are thus 14% less referenced than in the first analyzed period. Also, the presence of knowledge types is less than in the previous period. On average knowledge is present as 6% of the total text in the analyzed documents (Table 5), which is 3% less than in period one. Similar to the first period, the knowledge types information data, and ideas are found (Table 7). Here however the balance between the two is different with 68% of the text on knowledge being information data and 32% being about ideas. While most of the knowledge can still be categorized as information data, relatively more knowledge in this period is about ideas in comparison to the first period (Table 6).

The Information data in the government documents come out clearly through all the numbers and figures that are used. This is for example the case with the use of Covid-19 infection numbers to illustrate the trend of the Covid-19 outbreak in the Netherlands (Answers to the senate, 18-05-2020, p.2; Update letter, 03-06-2020, p.26). This knowledge is a clear example of information data because it is primarily raw data. Other examples of such raw data are the percentages of the increased load on general practitioners (Update, 03-06-2020, p.21), the number of infected in disabled care institutions (Update, 03-06-2020, p.29), or the mortality rate among the elderly (update, 06-05-2020, p.25). Information data as a type of knowledge is also present in government documents as scientific research. Both research results or preliminary reports are found within this second period. An example hereby is what influence gender has (Reactions to Parliament Questions, 06-05-2020, p.11) or the effect of overweight (Update letter, 03-06-2020, p.18) in regards to the severity of sickness caused by the virus. Information data in this period can thus both be statistical data and results from research.

The other type of knowledge that is found is as ideas. In the government documents, the minister of Health for example gives a possible explanation why labor migrants are more frequent among the infected (Update letter, 03-06-2020, p.34). Another example of an idea is the knowledge on the contagiousness of pre-symptomatic patients that are expected to only limited contributions to the outbreak of the virus in the Netherlands (Update letter, 06-05-2020, p.15). With both the examples, the ideas are presented together with information data to substantiate the ideas. Ideas as knowledge are also specifically found in the case of the policy on face masks. In the Update letter on the 6th of May 2020 the Minister of Health argues that based on research results, the compulsory wearing of masks should also reduce the spread of the virus in the Netherlands (Update letter, 06-05-2020, p.16). Here the knowledge is not a combination of the research results of mandatory face masks in other countries together with an assumption based on the expertise of the OMT. As also follows from the table on the quantitative analysis of knowledge types in this second period (Table 7), the knowledge type of ideas is thus also noticeable.

Knowledge utilization (substantiating & instrumental)

The face mask policy (substantiating)

The information data and the ideas are in this period used for mainly two policy debates. The first policy debate is about making the wearing of face masks in certain public spaces mandatory. The second is about the government announcing relaxation of measures against the Covid-19 outbreak. First, the creation of the face mask policy will be discussed. From the government documents, it can be derived that the advice on wearing face masks in public from the OMT was specifically requested by the government (Update letter, 06-05-2021, p.12). This already shows that the government considered the mandatory face masks as an option before the final advice by the OMT. Van Dissel moreover states that the eventual decision by the government to oblige the wearing of face masks is also not something that is advised by the OMT (Technical briefing, 07-05-2020, p.13). Van Dissel recognizes why the government opted for the policy, but he does not seem to be enthusiastic about the final policy.

As a reason for the policy, the government portrays the scientific research provided by the OMT to persuade the parliament on the effectiveness of wearing face masks in public (Update letter, 06-05-2021). What stands out here is that the Minister of Health does mention

the contradicting knowledge by the OMT that argues against the necessity of face masks in public areas where physical distancing can also be enforced. From the scientific research, it follows that the use of non-medical face masks is negligible if the original health measures are enforced (Technical briefing, 07-05-2020, p. 13). While the Minister of Health recognizes this limited effect of non-medical face masks, the government still is in favor of the face-mask policy (Update letter, 06-05-2021). While the government thus uses the knowledge provided by the experts, it does not fully follow the conclusion of the experts.

Following the misalignment of perspective on the knowledge and the fact that the government was the client of the advice, the knowledge utilization can be argued to be substantiating. The use of the research on the effectiveness of face masks can be seen as justifying the preference of the government to use face masks. To further enhance the legitimacy of the policy option, knowledge from the RIVM is presented by the Minister of Health that theorizes on the behavioral effect of face masks (Update letter, 06-05-2020, p.17). While this latter effect is not elaborated on, it becomes clear that the government tries to mix different knowledge sources to substantiate the policy option on wearing face masks in public. The substantiating utilization hereby best describes how the government has used the expert knowledge towards the policy on face masks.

Relaxations of Covid-19 measures

In the same period, a second policy debate takes place. Here the relaxations of Covid-19 measures are central. These relaxations are announced in different sectors. As a first, the Covid-19 measures in nursing homes were relaxed for the 25th of May 2020 (Update letter, 03-06-2020, p.4). Second, relaxations were announced for regional and local organizations on the 1st of June 2020 (Update letter, 05-06-2020, p.7). These relaxations were coupled with the introduction of the face masks as discussed above and with a comprehensive testing policy (Update letter, 05-06-2020). In the weeks before the implementation of these relaxations, the substantiations for these decisions are discussed by the government.

From the analyzed documents it follows that the Minister of Health primarily portrays these relaxations as a decision taken by the government. On the relaxations of regional and local sectors, the Minister of Health writes “the cabinet has worked out scenarios to be able to partially reopen sectors step by step” (Update Letter, 06-05-2020, p.5). While the knowledge sources are present, they are less notable.

The declined visibility of the experts does not mean that they are absent or neglected. That the experts from the RIVM and the OMT have contributed to the construction of the relaxations can be made up from the Technical briefings in this period. In the technical briefings, Van Dissel for example elaborates on the philosophy behind the relaxations (20-05-2020, p.7) or explains why the relaxations are possible (20-05-2020, p.12). Also, on a specific topic such as the intensification of testing for Covid-19 in society which is only mentioned in the government documents, Van Dissel does pose as an advocate and knowledge contributor on this topic in the Technical briefings (Technical briefing, 20-04-2020, p.16; 07-05-2020, p.27; 20-05-2020, p.26). Van Dissel thus poses as someone who contributed to the final policies. Also, the statistics used by the government to describe why relaxations are possible, originate from the RIVM. While experts are less cited (Table 8) than in other periods, it must be concluded that they are still active as advisors to the government like in the first period.

While the Minister of Health does not emphasize the influence of experts' knowledge on the relaxations policies, from the technical briefings it can thus be argued that experts have contributed. Also from Technical briefings, it follows that the experts endorse the decisions by the government. A less clear presence of experts in the documents has in the operationalization been ascribed to the instrumental use of knowledge (Boswell, 2008; Schrefler, 2010). From the theoretical framework, it also followed that a close relationship between the producer and the user of knowledge could lead to the self-evident use of expert knowledge and therefore less citing of the producer. For the knowledge utilization in this period on the relaxations of Covi-19 measures, the case can be made that knowledge has been used instrumentally.

The third period (January 2021 until mid-February 2021)

The third period that is analyzed in this thesis is the period between January 2021 and mid-February 2021. Before this period a new Covid-19 variant was discovered in Britain and was said to be more contagious than the Covid-19 virus original variant. This British variant was then accompanied by a massive Covid-19 outbreak in London in early January. On the eighth of January, the outbreak was to such an extent that the mayor of London declared a state of emergency (Time, 2021). Citizens were no longer allowed to go outside. When the British variant was also found in the Netherlands, the Dutch government responded by proposing a national curfew. The decision for the implementation of a curfew was politically contested.

Some political parties were heavily against it, somewhere in doubt if the social costs outweigh the advantages from a curfew and others saw it as a necessary evil (Parliamentary debate, 21-01-2021). Even the political parties which participated in the government at the time were not in favor of the decision. This period can therefore be characterized as having a high level of conflict.

The threat posed by the new British variant was notified by the OMT. While the OMT did not know for certain to what extend the British variant was already present in the Netherlands, they foresaw that the British variant could also pose a problem to Dutch society. From their advice to the government to opt for a curfew, it follows that they already knew that the reproducibility of the virus was significantly higher than the original Covid-19 variant. They also could inform on the effectivity of a national curfew on the reduction of an outbreak. Based on this knowledge, the OMT advised in favor of a curfew (Trouw, 2021; Update letter, 12-01-2021). This shows that the level of tractability among the experts was rather high.

The third period (early January 2021 until mid-February 2021)					
Document	**Total words**	**Sum of Ideas**	**Sum of Information Data**	**Total words on knowledge**	**% of words on knowledge to total**
21-01-20 Reaction to OMT	3759	231	631	862	23%
21-01-21 Parliamentary debate	29955	469	471	1000	3%
20-01-20 Reaction to OMT 02	13706	873	642	1515	11%
21-01-12 Update letter	15666	451	1393	1844	12%
17-12-31 Reaction to OMT	2006	231	348	579	29%
total		2255 (39%)	3485 (61%)	5800	16%

Table 7: statistics on the knowledge types in the third period

Type of knowledge (information data and ideas)

On the type of knowledge presented by experts in this period, the same types of knowledge are found as in the previous periods: information data and ideas. In comparison to the earlier periods, however, increased use of ideas of knowledge is found (Table 5 & 9). Where in the first period 27% of the knowledge was as ideas (Table 6) and in the second period 32% (Table 7), here in the third period 39% of the knowledge is as ideas. From this, it logically follows that the amount of information data respectively smaller. Expert knowledge has overall been used in a higher amount than the previous two periods (Table 5). 16% of the government text has been marked as some sort of knowledge. In comparison, in the first period 9% and the second period 6% of the text was about knowledge. Also, experts have been referenced in a higher amount (Table 8). In comparison to the first period, the RIVM and OMT also are 46% more mentioned by the government. In this third period, knowledge and experts are thus to a greater extent present than in previous periods.

In the government documents, information data is present as main statistics and research findings. Statistics are primarily found as a number of infected in the Netherlands and as spread rate in foreign countries (Parliament debate, 21-01-2021; Reaction to OMT advise, 17-01-2021; Update letter, 12-01-2021, p.3). Here these statistics from foreign countries help describe the rate of spread of other Covid-19 variants in these foreign countries. In addition to these statistics, research findings are presented on both the contagiousness of the British variant and the effect of a national curfew in other countries.

In addition to the information data, knowledge as ideas is found. As sketched earlier, the quick emergence of the British variant did not leave much room for consideration for the government (Trouw, 2021). In this period a relatively high amount of ideas are found (Table 5). In the government documents, these ideas are manifested as expectations on a future outbreak of the British variant in the Netherlands (Parliament debate, 21-01-2021; Update letter, 12-01-2021, p.10) and as a hypothesis on the effect of a curfew in the Netherlands (Update letter, 12-01-2021, p.7). Here the knowledge as ideas does sometimes also carries a sense of urgency as in the following quote “The OMT finds the epidemiological situation vulnerable and the long-term predictions, including the recently introduced UK and SA variants, worrying” (Reaction to OMT advice, 17-01-2021, p.3). Expert knowledge in this period is thus, similar to the previous periods, information data, and ideas.

Knowledge utilization (instrumental)

Both the information data and the ideas are present in the policy option of a curfew. This policy option of a national curfew is advised by the OMT. This follows from the update letter by the Minister of Health on the 12th of January 2021 (p.6) and from the Technical briefing by Van Dissel on the 20th of January. In the update letter by the Minister of Health, the Minister of Health ascribes the policy option of a curfew to be given by the OMT. Also in the parliamentary debate on the 21st of January 2021, the urgency for a curfew is mentioned by the Prime Minister to be made clear by the OMT. “The OMT has done two things. It has calculated curfew for us, but has also come up with an update on their views on the huge concerns surrounding the English virus” (Parliamentary debate 21-01-2021). Here the Prime Minister does mention that the option of a curfew is given by the OMT by request, but that the knowledge provided on the British variant is voluntary. In this debate, the Prime Minister mentions the urgency described by the OMT a couple of times.

The Prime Minister and the Minister of Health describe this urgency with the help of the information data and the ideas presented by the OMT. While in the parliamentary debate the information data is not presented, the minister of Health does use the statistics on the contagiousness of the British variant and the research outcomes on the effectiveness of a curfew in an reaction to OMT advice (17-01-2021, part 2, p.4). In this letter mainly a reaction is given to the advice given by the OMT in favor of a curfew. This reaction shows that the government is convinced by the advice given by the OMT and that the government also is in favor of extra measures to halt the spread of the British variant. From the parliamentary debate, it also becomes clear that the government is also not in favor of national curfew, but that the expert knowledge from the OMT overpowering. The Prime Minister even reacts in the debate by saying “Yes, but… I'm perplexed. No, of course, you don't want a curfew” (Parliamentary debate 21-01-2021).

Because the policy option of a curfew is portrayed by the government as being inevitable, it can be argued that the knowledge by the OMT is used instrumentally. The case for instrumental use is further strengthened by the endorsement by the experts during the Technical briefings (20-01-2021, p.16; p.18). Moreover, the knowledge provided by the experts to endorse a curfew is also found in the government documents which is for example the case with the reproduction rate of the British variant (Technical briefing, 13-01-2021, p.25;

Parliament debate, 21-01-2021, p.). Together with the alleged reservations argued by the government, it can be concluded that expert knowledge is by all means used instrumentally in this third period.

Answering the theoretical expectations

Now the analysis on the knowledge types and knowledge utilization in the three periods of the Covid-19 crisis in the Netherlands has been discussed, the results can be compared to theory. Here the six expectations that were formed in the theoretical framework are confronted with the results. First, the expectations on the utilization of expert knowledge will be encountered and after that, the expectations on knowledge types will be discussed.

Knowledge utilization expectations (expectation 1 to 3)

In the theoretical framework, expectations are drawn for which knowledge utilization to expect in certain situations. These situations are defined according to the dimensions by Schrefler (2010) on the level of tractability and the level of conflict. In the analysis, each period is described according to these dimensions. Hereby the analyzed knowledge utilization in a period can be compared with the expected knowledge utilization. In Table 10 both expected knowledge utilization and the analyzed knowledge utilization are shown.

	Period		
	1	2	3
Level of tractability	Low	High	High
Level of conflict	Low	Low to High	High
Expected knowledge utilization	Instrumental use	Instrumental use and substantiating use	Substantiating use
Analyzed knowledge utilization	Instrumental use and substantiating use	Instrumental use and substantiating use	Instrumental use

Table 8: expected and analyzed knowledge utilization

Based on the analysis of the three periods and as shown in Table 10, instrumental use is present in all periods. However not in all periods this was expected based on the theoretical framework. In period 1, both an instrumental and substantiating use of expert knowledge is found in the analysis. Besides in the analysis, the level of conflict and tractability were both established below. As was formulated by expectation 1, the instrumental use in the first period is expected in a situation with a low level of conflict and tractability. However, also substantiating knowledge was found in this first period. This use was found in association with the particular instance on intensive care capacity in the Netherlands. While only a small part of the policy debate was about the intensive care capacity and thus only a small amount of the knowledge utilization in the first period is substantiating, it nonetheless does not follow the theory.

In the analysis of the second period, both instrumental and substantiating knowledge utilization is found where both were also expected. However, in this second period, the level of tractability is positioned to be high and the level of conflict is between low and high. In the analysis, this increased level of conflict, in comparison to the first period, is mainly ascribed to the political debate that arose because of the face mask policy (Technical briefing, 07-05-2020; 20-05-2020). The other policy debate in the same period on the relaxations of Covid-19 measures does not cause a similar increase in the level of conflict. It could therefore be argued that the higher level of conflict only applies to the face mask policy debate. Following this argument, substantiating use is then expected within the policy debate on the face mask. The substantiating use was also concluded for this policy debate. Similarly, when describing the other policy debate then as having a low level of conflict, also here the expectations and the findings match: on instrumental.

In the last period also instrumental knowledge utilization is found. This is contradictory to the theory. In the analysis on this third period, the level of conflict and level of tractability were both argued to be high. Theoretically, substantiating knowledge use would be present in this period based on the level of tractability and conflict, as is stated in expectation 3 (Schrefler, 2010). Here the expectation and the findings thus misalign. The finding from the third period thus shows that, contradictory to the theory, instrumental use of expert knowledge can be found in a situation with a high level of conflict and tractability.

Knowledge type expectations (expectation 4 to 6)

Also on the appearance of knowledge types, expectations were drawn from the theory (Radaelli, 1995). These expectations were also built on top of the level of conflict and tractability used to indicate knowledge utilization (Schrefler, 2010). However, the knowledge types by Radaelli (1995) were only characterized by either the level of conflict or the level of tractability. Therefore in periods 1 and 2, two expectations are associated with these periods. These expectations together with the knowledge types that have been found in the respective period are used in Table 11. From the individual analysis of the three periods, information data and ideas were found in all periods. However as has been shown with the quantitative results, not in all periods the same balance between information data and ideas are found. In the following section, the comparison of expectations and findings will individually per period be discussed.

	Period		
	1	2	3
Level of tractability	Low	High	High
Level of conflict	Low	Low to High	High
Expected type of knowledge	Information data and ideas	Ideas and arguments	Arguments
Analyzed knowledge type	Information data and ideas	Information data and ideas	Information data and ideas

Table 9: expected and analyzed knowledge types

In the first period, which was characterized by a low level of conflict and tractability, information data and ideas were found. This was also as expected based on the theory and the expectations that were constructed from it. However, because the level of conflict and tractability were both found to be low, from the expectations one could argue that both information data and ideas are equally expected in this period. This is however not the case, as Table 6 shows, ideas only make up for 27% of the knowledge in this period and the information data is with 73% a lot more used. However, because Radaelli (1995) only argues

on the presence of knowledge types and not on the dominance of a knowledge type, the claim that both types are equally expected, cannot be theoretically substantiated. Therefore, the findings are at least in line with the theory.

In the second period, again information data and ideas are found (Table 11). As this period is characterized by a high level of tractability and a low to a high level of conflict, knowledge as ideas and arguments were expected to be found (Radaelli, 1995). Here a partial misalignment is thus present. While the ideas were expected and found in this period, information data was not expected to be present in this period and was found instead of arguments that were expected. Moreover, information data still was a big part of the knowledge in this period, as it accounted for 68% of the knowledge in the government documents (Table 7). The share of ideas in the second period is 5% higher than in the first period (Table 6). While the amount of knowledge as ideas has grown, still information data is present in a large amount while this was not to be expected.

In the third period, as in the previous two periods, information data and ideas are present as knowledge (Table 11). However, this does not strike with the expectations for this period. As this period is characterized as having both a high level of conflict and tractability, only knowledge as arguments were expected from the theory by Radaelli (1995). From the theory, it follows that in such a situation, only politicized knowledge is expected (Radaelli, 1995). Instead, information data is found, which Radaelli associates with only depoliticized arenas. Moreover, information data makes up for the most knowledge in this period with a share of 61% (Table 9). However, this is a comparatively lower amount than in the previous periods. Also, in this period again an increased amount of ideas are found (39%, Table 9). While based on expectation 6, arguments, were expected to be found in this period, in the analysis at least fewer information data, was found in this period.

Conclusion

Concluding, in this thesis expert knowledge and the covid-19 crisis have been the subject of research. More precisely, knowledge types and knowledge utilization have been analyzed in three distinct periods of the Covid-19 crisis in the Netherlands. This has been done through expectations drawn for the literature in the theoretical framework. Hereby Schrefler (2010) was used to develop the expectations on knowledge utilization in certain situations. These are the first three expectations. Radaelli (1995) was used to argue for the presence of knowledge types in certain situations and developing Expectations 4 to 6. In the analysis, these expectations have been tested. Hereby technical briefings and government documents have been used to deconstruct which knowledge types and type of knowledge utilization are present. The analyses have primarily been qualitative but have also been supplemented with quantitative results on the presence of knowledge types.

Based on the results, first, the conclusion about the first three expectations about knowledge utilization is discussed. From expectation 1, instrumental knowledge utilization should present in a situation with a high or low level of tractability and a low level of conflict. This expectation is found to be partially true. It is true for period 1 where a low level of conflict and level of traceability is established. On the introduction of measures against the Covid-19 virus outbreak indeed an instrumental use was found. However, also on the specific subject of intensive care capacity, also a substantiating use can be noticed. While this latter occurrence is smaller than the overall policy debate on Coviid-19 measures, it does show that also a substantiating use of expert knowledge can be found within an arena characterized as depoliticized by Radaelli (1995). The other argument against the expectation that instrumental use is only to be found in a situation with a low level of conflict and tractability, is the case of period 3. In this period, associated with a high level of conflict and tractability, also instrumental use is found. This also shows that instrumental use is not limited to situations with a low level of conflict and tractability, but can thus also be found in tense political debates.

On the second expectation, no conclusion can be drawn, because neither legitimizing knowledge use was found, and also no situation was established with the characteristics of a low level of tractability and a high level of conflict. Answering expectation 3 is possible because both a situation adhering to the requirements of the expectation is found and substantiated

knowledge use is found. In period 2 in the specific case of the face mask policy debate, both a substantiated knowledge use is found, and also the situation is described with a high level of conflict and tractability. Similar to expectation 1 however, this expectation 3 can only partially be confirmed. Substantiated knowledge use is also found in the first period with a low level of conflict and tractability and the third period, instrumental use is found among a high level of conflict and tractability. While substantiated use is thus found among high levels of conflict and tractability also other knowledge uses are found in such a situation and substantiated knowledge is also found in situations with low levels of conflict and tractability.

Also on the presence of knowledge types, three expectations were developed. In all the analyzed periods, information data and ideas as knowledge types were found. Based on expectation 4, information data was however only to be expected in a situation with a low level of conflict. On ideas, according to expectation 5, ideas as knowledge was only to be found among low levels of tractability. Only the first period was established having these characteristics: a low level of conflict and tractability. Therefore based on expectations 4 and 5, only in the first period, both information data and ideas were expected. However, also in periods 2 and 3, information data and ideas are found. This while in period 2 ideas and arguments were expected and in period 3 only arguments were predicted to be present. From the quantitative analysis, it can however be added that information data as a share of the knowledge in a period, decreases between periods 1 to 3 (Table 6, 8 & 9). Where in period 1 73% of the knowledge was information data (Table 6), in period 2 it had decreased to 68% (Table 7), and in period 3 to 61% (Table 9). Information data is thus less present in a period where it is not expected to be in comparison to a situation where it is expected. However, while the presence of information data is smaller in periods 2 and 3, according to expectations 2 and 3, it should not be present. Expectations 2 and 3 can therefore not be confirmed.

Overall, while based on this thesis, knowledge use and knowledge types cannot accurately be predicted, an answer can be formulated to the research question of this thesis. In the introduction, the following research question was formulated: “In what way is expert knowledge used in policymaking during the covid-19 crisis in the Netherlands?” Based on what has been concluded in this section so far, it can be concluded that throughout these three periods, information data and ideas are important knowledge types and expert knowledge is found to be utilized instrumentally in all three periods and substantiating use is associated with the IC capacity debate (period 1) and the face mask policy (period 2). Form these periods

it follows that expert knowledge in the Covid-19 crisis in the Netherlands is thus primarily utilized instrumentally by the government and secondary also substantiating.

As described in the introduction, Van Nispen and Scholten also have researched the knowledge utilization by the Dutch government in previous crises. They found that during the financial crisis of '08/'09 and during the migration crisis between 2000 and 2015 the Dutch government had used expert knowledge in a legitimizing way in both these crises. Two distinct crises were thus associated with the same type of knowledge utilization. Moreover, Boin, Ekengren, and Rhinard (2020) argued that these crises were both conceptually connected, because both could be categorized as a creeping crisis. However, Boin, Ekengren, and Rhinard (2020) have also conceptualized the Covid-19 crisis as a creeping crisis. While in both the creeping crisis analyzed by Van Nispen and Scholten (2017) where both associated with legitimizing knowledge, the Covid-19 crisis is not the case. The type of crisis thus does not (directly) define how knowledge is utilized by a government. However, a different type of knowledge utilization is thus found to be important in the same country in almost the same decade, but in another crisis.

Knowledge thus plays a different role in the Covid-19 crisis in the Netherlands than in the previous creeping crisis. As mentioned in the introduction and the theoretical framework, this was also hypothesized by Boin et al. (2020) and Boin, Ekengren, and Rhinard (2020). As their hypothesize was built on theoretical insights, their hypothesize has through this thesis been substantiated with empirical research. As Boin et al. (2020) suspected, the analysis of this thesis found that expert knowledge has played an important role in the shaping of Dutch policies during the Coivd-19 crisis. In comparison to the research by Van Nispen and Scholten (2017), knowledge utilization by the Dutch government is thus less political, due to the instrumental use.

Discussion

With the conclusion of this thesis finished, only some thoughts remain for the discussion. First of all, the comparison with the research by Van Nispen and Scholten (2017) is limited. In their research, they seem to only have used government documents to find how knowledge is utilized by the Dutch government. From their methodology, it does not follow that they have also used documents, reports, or briefings from experts to verify the output of expert knowledge by the government with the input by experts. Hereby the argument for a type of

expert knowledge utilization by the government depends only on the government documents. Because the researches seem to differ on a methodological level, comparing the results is limited. To better compare the results, the research by Van Nispen and Scholten (2017) could be substantiated by adding the source of experts. Hereby the advantage in this thesis by using both the government and the experts as a source, is that the narrative from the government documents can be put into perspective.

Second, as Boin, Ekengren, and Rhinard (2020) point out, the Covid-19 crisis is likely to have caused a lot of uncertainty for policymakers. This may stem from the fact that very specific knowledge was required in this crisis to understand the virus and therefore shape measures against the outbreak. The experts present during the Technical briefings were virologists, doctors, and health officials. The knowledge provided by these experts can thus be argued as specific knowledge which is generally not possessed by policymakers. The importance of these experts has been established with this thesis. However, more experts have been present in the Covid-19 crisis. An example hereby is the city mayors that also have contributed their knowledge on multiple occasions on for example the practicalities of a national curfew. Such knowledge can be argued as more well known by the policymakers. It may be interesting to analyze how expert knowledge has been utilized by experts other than experts from the RIVM or the OMT as in this thesis.

Last, predicting the knowledge types and the knowledge situation in this thesis was not successful. The level of conflict and tractability (Radaelli, 1995) were not sufficient to shape accurate expectations in the theoretical framework. As this thesis only analyses three periods (N=3), the mismatch between theory and empirical data does not mean that the theory is insufficient. However, Boin, Ekengren, and Rhinard (2020) argue that uncertainty among policymakers is an important characteristic of the Covid-19 crisis. This characteristic does not solely focus on the situation, but also looks at the capabilities of the policymakers. In future research, it can be interesting to analyze whether the circumstances of policymakers help predict knowledge use and knowledge types in (crisis) situations.

References

Boin, A., Brock, K., Craft, J., Halligan, J., ‘t Hart, P., Roy, J., . . . Turnbull, L. (2020). Beyond COVID-19: Five commentaries on expert knowledge, executive action, and accountability in governance and public administration. *Canadian Public Administration*, *63*(3), 339–368. https://doi.org/10.1111/capa.12386

Boin, A., Ekengren, M., & Rhinard, M. (2020). Hiding in Plain Sight: Conceptualizing the Creeping Crisis. *Risk, Hazards & Crisis in Public Policy*, *11*(2), 116–138. https://doi.org/10.1002/rhc3.12193

Boin, A., Lodge, M., & Luesink, M. (2020). Learning from the COVID-19 crisis: an initial analysis of national responses. *Policy Design and Practice*, *3*(3), 189–204. https://doi.org/10.1080/25741292.2020.1823670

Boin, A., McConnell, A., & ’t Hart, P. (2008). *Governing after Crisis: The Politics of Investigation, Accountability and Learning* (1st ed.). Cambridge, United Kingdom: Cambridge University Press.

Boin, A., & ’t Hart, P. (2001). Between crisis and normalcy: the long shadow of post-crisis politics. In U. Rosenthal, A. Boin, & L. K. Comfort (Eds.), *Managing Crises* (pp. 28–45). Springfield, Illinois: Charles C Thomas.

Boswell, C. (2008). The political functions of expert knowledge: knowledge and legitimation in European Union immigration policy. *Journal of European Public Policy*, *15*(4), 471–488. https://doi.org/10.1080/13501760801996634

Boswell, C. (2009). *The Political Uses of Expert Knowledge* (1st ed.). Cambridge, United Kingdom: Cambridge University Press.

Christensen, J. (2020). Expert knowledge and policymaking: a multi-disciplinary research agenda. *Policy & Politics*. Published. https://doi.org/10.1332/030557320x15898190680037

Ministerie van Algemene Zaken. (2021, February 2). Lockdown verder aangescherpt vanwege zorgen om nieuwe virusvarianten. Retrieved 8 June 2021, from https://www.rijksoverheid.nl/actueel/nieuws/2021/01/20/lockdown-verder-aangescherpt-vanwege-zorgen-om-nieuwe-virusvarianten

NOS. (2020a, March 12). TERUGKIJKEN: Persconferentie over maatregelen tegen coronavirus. Retrieved 4 June 2021, from https://www.youtube.com/watch?v=0iD1FN6I87Y

NOS. (2020b, March 16). TERUGKIJKEN: Toespraak premier Rutte: 'veel Nederlanders zullen besmet raken met corona'. Retrieved 7 June 2021, from https://www.youtube.com/watch?v=D3QPmphUK_M

NOS. (2020c, April 16). 'Een mondkapje verplichten is niet zinvol, zelfs niet als er genoeg zijn'. Retrieved 8 June 2021, from https://nos.nl/artikel/2330699-een-mondkapje-verplichten-is-niet-zinvol-zelfs-niet-als-er-genoeg-zijn

NOS. (2020d, May 19). Versoepelingen een feit, dit verandert er vanaf 1 juni. Retrieved 27 May 2021, from https://nos.nl/artikel/2334451-versoepelingen-een-feit-dit-verandert-er-vanaf-1-juni

NOS. (2020e, May 20). Kamer kritisch over steunpakket, strategie en mondkapjes in het ov. Retrieved 8 June 2021, from https://nos.nl/artikel/2334581-kamer-kritisch-over-steunpakket-strategie-en-mondkapjes-in-het-ov

NOS. (2020f, December 14). TERUGKIJKEN: Toespraak premier Rutte over nieuwe lockdown. Retrieved 7 June 2021, from https://www.youtube.com/watch?v=LLktWm8oBMY

NOS. (2021a, January 6). 'Mega-operatie' van start: Nederland begonnen met vaccineren tegen corona. Retrieved 7 June 2021, from https://nos.nl/artikel/2363236-mega-operatie-van-start-nederland-begonnen-met-vaccineren-tegen-corona

NOS. (2021b, May 17). Versoepelingen overmorgen gaan door, kabinet vindt cijfers goed genoeg. Retrieved 7 June 2021, from https://nos.nl/artikel/2381111-versoepelingen-overmorgen-gaan-door-kabinet-vindt-cijfers-goed-genoeg

NU.nl. (2020, February 28). Eerste persoon in Nederland besmet met coronavirus. Retrieved 1 June 2021, from https://www.nu.nl/coronavirus/6033176/eerste-persoon-in-nederland-besmet-met-coronavirus.html

Radaelli, C. M. (1995). The role of knowledge in the policy process. *Journal of European Public Policy*, *2*(2), 159–183. https://doi.org/10.1080/13501769508406981

Rampin, R., Rampin, V., & DeMott, S. (2021). Taguette (Version 0.10.1) [Software]. Zenodo. Retrieved from https://doi.org

Rijnmond. (2020, June 2). Reizigers nemen verplicht mondkapje in het OV met tegenzin voor lief. Retrieved 8 June 2021, from https://www.rijnmond.nl/nieuws/195944/Reizigers-nemen-verplicht-mondkapje-in-het-OV-met-tegenzin-voor-lief

RIVM. (n.d.). Outbreak Management Team (OMT). Retrieved 30 April 2021, from https://www.rivm.nl/en/novel-coronavirus-covid-19/omt

Rosenthal, U., & Hart, P. (1991). Experts and Decision Makers in Crisis Situations. *Knowledge*, *12*(4), 350–372. https://doi.org/10.1177/107554709101200402

Schrefler, L. (2010). The Usage of Scientific Knowledge by Independent Regulatory Agencies. *Governance*, *23*(2), 309–330. https://doi.org/10.1111/j.1468-0491.2010.01481.x

Time. (2021, January 8). London Declares State of Emergency as COVID-19 Surge Threatens to Overwhelm Hospitals. Retrieved 24 May 2021, from https://time.com/5927895/london-emergency-covid-19/

Trouw. (2021, January 20). Het kabinet wil Nederland inderdaad aan de avondklok. Retrieved 8 June 2021, from https://www.trouw.nl/binnenland/het-kabinet-wil-nederland-inderdaad-aan-de-avondklok~beb615d8/

Tweede Kamer der Staten-Generaal. (2021, January 21). Plenaire verslagen | Tweede Kamer der Staten-Generaal. Retrieved 8 June 2021, from https://www.youtube.com/watch?v=ZebjDcrj-XI

van Nispen, F. K. M., & Scholten, P. W. A. (2017). The Utilization of Expert Knowledge in Times of Crisis: Budgetary and Migration Policies in the Netherlands. *Contemporary Issues of Policy-Making Across Europe*, *3*(1), 81–100. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1002/epa2.1014

Appendix A: documents used for the analysis

Technical briefing (04/02/2020). Update coronavirus, https://www.tweedekamer.nl/downloads/document?id=4440653d-32f7-4c56-8932-298ca66736c1&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%204%20februari%202020%2C%20over%20coronavirus.pdf

Technical briefing (03/03/2020). ontwikkelingen coronavirus, https://www.tweedekamer.nl/downloads/document?id=9a3db1ba-85c0-4e2b-902f-69b779067eb9&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%203%20maart%202020%2C%20over%20ontwikkelingen%20coronavirus.pdf

Measures letter (10/03/2020). COVID-19: Nieuwe maatregelen, advies Bestuurlijk Afstemmingsoverleg, en internationale ontwikkelingen, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/03/10/kamerbrief-over-covid-19-nieuwe-maatregelen-advies-bestuurlijk-afstemmingsoverleg-en-internationale-ontwikkelingen/kamerbrief-over-covid-19-nieuwe-maatregelen-advies-bestuurlijk-afstemmingsoverleg-en-internationale-ontwikkelingen.pdf

Technical briefing (10/03/2020). ontwikkelingen coronavirus, https://www.tweedekamer.nl/downloads/document?id=d1e46064-664c-45fe-9306-3d27630f8d4b&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2010%20maart%202020%2C%20over%20ontwikkelingen%20coronavirus.pdf

Measures letter (12/03/2020). COVID-19 Nieuwe maatregelen, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/03/12/kamerbrief-over-covid-19-nieuwe-maatregelen/kamerbrief-over-covid-19-nieuwe-maatregelen.pdf

Technical briefing (18/03/2020). ontwikkelingen rondom het coronavirus, https://www.tweedekamer.nl/downloads/document?id=e8793872-b984-4c70-9bc9-7ee79cd35156&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2018%20maart%202020%2C%20over%20ontwikkelingen%20rondom%20het%20coronavirus.pdf

Update letter (20/03/2020). COVID-19: Update stand van zaken, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/03/20/kamerbrief-covid-19-update-stand-van-zaken/COVID-19+-+Update+stand+van+zaken.pdf

Answers to parliament (25/03/2020). Kamervragen, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/03/25/beantwoording-feitelijke-vragen-naar-aanleiding-van-kamerbrief-over-de-situatie-in-de-grensregios/beantwoording-feitelijke-vragen-naar-aanleiding-van-kamerbrief-over-de-situatie-in-de-grensregios.pdf

Technical briefing (25/03/2020). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=bdb8904d-e505-42d0-b6b4-cb92202ed71d&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2025%20maart%202020%2C%20over%20update%20coronavirus.pdf

Technical briefing (08/04/2020). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=afcd1567-a6ff-489d-9d2d-9db6329ee6be&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%208%20april%202020%2C%20over%20update%20coronavirus.pdf

Technical briefing (16/04/2020). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=0d7f9db1-dbf7-4c79-b007-98089163b8c5&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2016%20april%202020%2C%20over%20ontwikkelingen%20Coronavirus.pdf

Technical briefing (22/04/2020). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=d45b5109-462f-4c6b-a9c6-1fb253109c66&title=Verslag%20van%20een%20rondetafelgesprek%2C%20gehouden%20op%2022%20april%202020%2C%20over%20corona-app.pdf

Answers to parliament (06/05/2020). Beantwoording Kamervragen over de coronacrisis, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/05/06/beantwoording-kamervragen-over-de-coronacrisis/beantwoording-kamervragen-over-coronacrisis.pdf

Update letter (06/05/2020). Kamerbrief: COVID-19 Update stand van zaken, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/202

0/05/06/kamerbrief-covid-19-update-stand-van-zaken/Update+corona+6+mei+2020.pdf

Technical briefing (07/05/2020). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=38de4394-6d77-4dee-9da9-54a79d37e78a&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%207%20mei%202020%2C%20over%20update%20coronavirus.pdf

Letter to senate (18/05/2020). Commissiebrief Eerste Kamer inzake Verzoek in het kader van (nood)verordeningen die betrekking hebben op de bestrijding van de verspreiding van het coronavirus, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/05/18/kamerbrief-verordeningen-bestrijding-coronavirus/commissiebrief-inzake-verzoek-in-het-kader-van-noodverordeningen-die-betrekking-hebben-op-de-bestrijding-van-de-verspreiding-van-het-coronavirus.pdf

Technical briefing (20/05/2020). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=0bc7f632-f942-447c-9bf0-6fe3cf6e8f5d&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2020%20mei%202020%2C%20over%20update%20coronavirus.pdf

Update letter (03/06/2020). Kamerbrief over stand van zaken COVID-19, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/06/04/kamerbrief-over-stand-van-zaken-covid-19/Kamerbrief+COVID-19+Update+stand+van+zaken.pdf

Update letter (31/12/2020). Kamerbrief over 94e OMT advies en kabinetsreactie, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2020/12/31/omt-advies-en-kabinetsreactie/omt-advies-en-kabinetsreactie.pdf

Update letter (12/01/2021). Kamerbrief stand van zaken COVID-19 (januari 2021), https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2021/01/13/kamerbrief-inzake-stand-van-zaken-covid-19/kamerbrief-inzake-stand-van-zaken-covid-19.pdf

Technical briefing (13/01/2021). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=ebc042ad-4150-4bd3-83b9-98c01bd1ea86&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2013%20januari%202021%2C%20over%20update%20coronavirus.pdf

Reaction to OMT advice (17/01/2021). Kamerbrief 96e OMT advies deel 1 over COVID-19 en kabinetsreactie, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2021/01/17/96e-omt-advies-deel-1-en-kabinetsreactie/96e-omt-advies-deel-1-en-kabinetsreactie.pdf

Reaction to OMT advice (20/01/2021). Kamerbrief reactie op deel 2 96e advies OMT, https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2021/01/20/kamerbrief-over-96e-omt-advies-deel-2-en-kabinetsreactie/96e-omt-advies-deel-2-en-kabinetsreactie.pdf

Technical briefing (20/01/2021). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=ef02edae-d247-4e00-9e66-0851b653b773&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2020%20januari%202021%2C%20over%20update%20coronavirus.pdf

Parliament debate (21/01/2021). Tweede Kamer, 47e vergadering, Donderdag 21 januari 2021, https://www.tweedekamer.nl/kamerstukken/plenaire_verslagen/detail/e5613b41-85c0-4f35-a302-5780d8a84ca0

Technical briefing (04/02/2021). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=ee7cf5db-cdd2-4198-a0bc-a55c61008538&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%204%20februari%202021%2C%20over%20update%20coronavirus.pdf

Technical briefing (24/02/2021). update coronavirus, https://www.tweedekamer.nl/downloads/document?id=9c460e7c-d8bd-4dd8-bc35-dc4916a1e469&title=Verslag%20van%20een%20technische%20briefing%2C%20gehouden%20op%2024%20februari%202021%2C%20over%20update%20coronavirus.pdf