

Finding a balance between meaningful and useful participation by improving information provision

Assessing the effectiveness of information provision approaches in participatory value evaluation on empowering participants to give informed input on urban climate adaptation projects



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projects

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Preface

In this report, the final results and conclusions of my master thesis are presented. This master thesis is written as final step in completing my masters *Complex Systems Engineering & Management*.

At the start of the research of this master thesis, I would have never thought this would be the end result. I started with a vague idea on wanting to do something with urban climate adaptation and how citizens are involved in the process of designing and implementing adaptation measures. And since I am convinced that using a range of different research methods – both quantitative and qualitative – in one research is of added value I wanted to use a mixed methods approach. It provides for an enriched image of the object research. Looking at this master thesis, I can say that all these elements come back: a research on the use of the consultative participation method PVE in urban climate adaptation by combining different research methods.

However, none of this was possible without the guidance and supervision of my graduation committee. Neelke, thank you for your understanding in these times of lockdown and your feedback on the choices made for my research design. Jos, thank you for helping me writing more concise and to the point and indispensable input on the content of urban climate adaptation. Niek, for helping me grasp PVE and pushing me to improve the foundations of this research. Anatol, thank you for sharpening the conceptual basis of my thesis and for your approachability. A special word of gratitude to Martine Rutten. Although not part of my graduation commission, you helped me a lot in defining the basis of my research design and finding a case study.

Furthermore, I want to thank Perry Borst and Ruth Shortall for their flexibility and swiftness in supporting me in working with the PVE webtool. I would like to thank Daan Vermeer, Luuk van der Burgt and Eline van Weelden for their trust in me to perform the experiment in Reyeroord and their support in designing the PVE-survey. Moreover, I thank all my friends and family for tips, tricks, testing my experiment and their critical reviews.

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Summary

The climate is changing globally, and this will have major effects on our cities. Heat and water stress, water scarcity, pluvial flooding and many other impacts will influence our daily life more in the future. Mitigation as a strategy for coping with climate change is no longer enough, we also have to adapt to the related impacts, so-called urban climate adaptation (UCA). UCA can be defined as “adjustments in ecological-social-economic systems in response to actual or expected climatic stimuli, their effects or impacts” (Smit et al., 1999, p. 200) in an urban context. Public participation can contribute to the effectiveness of UCA, for example, by giving a democratic foundation to decisions, by enhancing the quality of measures through mobilizing local knowledge, by increasing the awareness on climate change effects among participants or by increasing the legitimation of decisions. Public participation is defined as “securing the active involvement of a broad range of stakeholders in decision-making and action. Such participation encompasses input into formal decision-making structures, as well as into the deliberative democratic fora” (Few et al., 2007, p.47).

When implementing public participation for a complex subject such as urban climate adaptation (UCA), designing the information provision is key. Policy makers select and present information on basis of the available information and a perception of what participants need to participate. But most of all, the supply of information is based on the perception of useful participation of facilitators – i.e. the objectives to be achieved with participation. On the other side, participants have a need for a selection and presentation of information in order to give informed and motivated input. This demand of information is based on the notion of meaningful participation – does the information enable participants to give substantiated input in order to have influence in the participation process. Connecting meaningful and useful participation – by designing an optimal information provision – can lead to effective participation.

However, designing the information provision is challenging and therefore often does not empower participants to state their preferences. The problems associated to information provision in public participation materialize in complex subjects such as UCA. UCA is a complex subject matter that asks a lot from participation with regard to knowledge, whereas it is the policy maker who possesses this knowledge. First of all, quite some knowledge on climate change and adaptation is required to assess the uncertainty and risks involved and how that effects local communities. This complicates the inclusion of citizens that have no or limited prior knowledge on UCA. Likewise, the interrelatedness with other urban challenges and the multi-level governance needed, makes UCA hard to grasp for people that are not working on UCA on a daily basis. This translates in participation processes that tend to have an overrepresentation of high educated people with knowledge of legal processes.

A similar pattern is observed in Participatory Value Evaluation (PVE). PVE is a webtool-based participation method that is used to increase participation by others than the usual suspects. In PVE, respondents are asked to allocate a budget or points to a portfolio of projects that reflects real policy options, therewith evaluating the projects by stating their preferences. By presenting the trade-offs to be made by policy makers, it provides insight in the complexity of subjects such as UCA. However, the provision of information in PVE on complex subjects is still characterized by some problems such as susceptibility by framing, misinterpretation and self-selection.

It is evident that participation is effective when the environment in which the participation occurs meets the requirements of both useful and meaningful participation. Information and knowledge can play a key role in making participation in a complex subject as UCA in PVE more effective. However, it is still unknown how information or knowledge should be presented and selected in PVE to empower participants and let meaningful and useful participation coincide. The research question that follows from this knowledge gap is:

How to provide information to participants – with little prior knowledge on a complex subject such as UCA – in PVE in order to provide for both meaningful and useful participation?

The aim of this research is to gain insight in what information approaches can be used to connect useful and meaningful participation. In other words, to find out how facilitators of participation should design information provision in order to arrive at effective participation. A mixed methods approach is used to answer the research question. First an exploratory research is executed to identify what information provision approaches for complex subjects are described in scientific literature and are used by facilitators of participation. Thereafter, an information manipulation experiment is performed in which these approaches are tested by translating them into treatments that are applied in a PVE-survey. Subsequently, the explanatory research starts. In this phase of the research the effects of the treatments on the stated preferences of participants and on their evaluation of (the meaningfulness of) participation is analysed. Besides, an evaluation by policy makers is performed to provide insight in whether the approaches reflect their perception of useful participation. The research is executed among citizens of Reyerood. Reyerood is a neighbourhood in the city of Rotterdam in which a water storage is realized – to prevent water nuisance because of climate change – in a green area that will be redeveloped.

From the exploratory research – a literature review, expert interviews and a document analysis were performed to compare theory and practice – it follows that the flow of information between facilitator and participant consists of the elements information selection and information presentation done by the facilitator, and the processing of information by participants. In order to arrive at a right processing of information the information provision approaches should reduce complexity of the subject, psychological distance, and misinterpretation. The information provision also needs to comply with the heterogeneity among participants. The following three approaches were elicited:

1. According to the interviewees, the broader debate on climate change, and technicalities on UCA should be left out of the message to reduce complexity and psychological distance. The literature indicates that respondents should not be underestimated and that scenarios can be used to reduce complexity.
2. To reduce complexity and psychological distance the message can also be made more attainable. This can be done by localizing or visualizing the information.
3. Finally, the information provision should be flexible in order to answer to the heterogeneity in demand for information among participants. Deliberative communication and participation, and progressive disclosure of information can be used to do that.

For the information manipulation experiment, two of the three approaches were translated into treatments that were applied to the introduction text and policy options texts in a PVE-survey on the design of the water storage in Reyerood. The third approach was not included in the experiment because of time constraints. The first treatment included the broader debate on climate change and increased the number of technicalities and figures named in the text. In the second treatment, the message was made more attainable for participants, mostly by adding visualisations. Respondents were randomly distributed over the two treatments. They filled in the PVE-survey, stated their motivations for their selection of policy options and revealed their attitudes on the information provision, their feeling of empowerment and the PVE method by scoring statements on Likert scales and by answering open questions.

Firstly, quantitative analyses were performed on the outcomes of the PVE-survey and the questionnaire. The multiple regression analysis on the allocation of points to options shows that the treatments do not influence the allocation. Other variables related to the processing of information such as psychological distance do influence the allocation. The results of the questionnaire show that on average respondents have positive attitudes towards the information provision, their empowerment and the PVE method. Independent samples t-test and Mann-Whitney U tests show that the treatments do not explain the observed small differences in attitudes.

However, the qualitative analyses of the motivations and answers to open questions show a less straight-forward conception. The motivation for the selection of points shows a little difference in the choice for one of the policy options between the treatments. However, the motivations mostly showed that participants interpreted the method and the status of the policy options differently. Furthermore, the analysis of the open questions indicates that in both treatments there is a clear need for visualisations and that respondents can clearly indicate what information they missed. However, it is also observed that the information provided is of great influence on what information is needed or wanted by participants. For example, it is observed that visualisations are important for respondents in both treatments, but that a majority of respondents in treatment 2 is not entirely satisfied with the provided visualisations and that there is variety in what kind of visualisations respondents want. Moreover, the wishes and needs for information selection and presentation show a great heterogeneity among citizens that is not related to the treatments.

Finally, policy makers working in the case studied and involved in preparing the PVE-survey evaluated the information manipulation experiment. The policy makers' perception of useful participation shows a heterogeneity of objectives; ranging from mobilizing local knowledge, giving citizens a voice on the redevelopment of their living environment, but also legitimizing their decision and activating citizens. The conflict between these objectives is evident in the evaluation of information provision in participation. According to the policy makers, an open dialogue – i.e. no restriction or steering on the stated wishes or needs of participants – is essential for giving citizens a voice. They feel that PVE is not suitable for the exploratory phase of participation processes, as the policy makers feel restricted by the rigid structure of consultation in PVE that does not facilitate the open dialogue between facilitator and participants that they want. On the other hand, the case study showed that the same policy makers restricted the problem area for participants to give input on from realizing a water storage in the green area to only the redevelopment of the green area. In other words, they already decided on several main elements of the project in name of the citizens.

Concluding, the wishes and needs for information in participation processes, particularly in PVE and UCA, differ widely among participants. The two tested approaches did not influence the meaningfulness of participation. However, the heterogeneity in needs and wishes among participants indicates that the third approach of using flexible information provision to answer to the heterogeneity of the public is more suitable for achieving meaningful participation compared to the two approaches tested in this research. Furthermore, in accomplishing effective participation – in other words, connecting meaningful and useful participation – the information needs to incorporate the heterogeneous wishes and needs for information by participants. The responsibility to do this lies with the facilitator. However, the facilitator needs to combine often different objectives of participation of which some are contrary to ensuring information provision for meaningful participation. Therefore, one of the objectives, or maybe the core objective, of the facilitator (and therefore part of the perception of useful participation) should be to create an information provision that ensures meaningful participation.

This research is a contribution to the empirical research on information provision in participation processes – specifically PVE – on complex subjects – specifically UCA. The results show a need for considering the heterogeneity of participants in the information provision. However, the conclusions are not generalizable to other participation processes in other cases. Nevertheless, this research can be used as a proof of concept for further research. The focus of this research on the demand for specific information by participation can contribute to more understanding on how information provision should be designed in participation processes. Therefore, it is recommended that more research from this point of view is performed. Especially, in combination with observational studies in which the use of information by participants is examined.

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1 Introduction

In this chapter the study on information provision in participation on urban climate adaptation is introduced. The chapter starts with a literature review resulting in a knowledge gap and the main research question. Subsequently, the research objectives and the scientific and societal relevance are discussed in the second section. The chapter ends with an overview of the steps taken in this research. The methods are discussed on the basis of the 6 sub research questions.

1.1 Information provision in public participation on urban climate adaptation

1.1.1 Urban climate adaptation

The climate is changing globally, and this will have major effects on our cities. Heat and water stress, water scarcity, pluvial flooding and many other impacts will influence our daily life more in the future (IPCC, 2014). It is certain that these effects will occur, however the magnitude of the effects is still uncertain (Carmin et al., 2013). Mitigation as a strategy for coping with climate change is no longer enough, we also have to adapt to the related impacts, so-called climate adaptation. Combined with participatory processes, climate adaptation contributes to the inclusive green growth advocated by The World Bank (The World Bank, 2012).

Adaptation can be defined as “adjustments in ecological-social-economic systems in response to actual or expected climatic stimuli, their effects or impacts” (Smit et al., 1999, p. 200). This definition can be associated to ‘adaptive capacity’ which reflects the capacity of systems, regions or communities to act for adaptation (De Bruin et al., 2009). Carmin et al. (2013) see adaptation as a way to reduce vulnerability, in other words to reduce risks. Adaptation can also be related to the reduction of costs and the exploitation of potential benefits (Scholten & Keskitalo, 2015). The fact that adaptation concerns impacts in the distant future makes it hard to draw attention to the issue. Its long-term character does not correspond with decision-making processes which tend to be targeted towards short-term local needs (Chu et al., 2015).

In climate adaptation the focus is on the urban environment and a local scale level, so-called urban climate adaptation (UCA). The effects of climate change are mostly experienced on the local level (Driessen et al., 2018; Shi et al., 2016). Adaptation in cities is also most effective on this level as the context (e.g. demographical or physical characteristics) can differ considerably between places (Shi et al., 2016; Sarzynski, 2015). For example, two streets next to each other can differ in the amount of green or subsidence, which has influence on the needed measures. Local communities have specific knowledge of this local socio-economic context and therefore need to be involved in the design of effective and just adaptation strategies (Chu et al., 2015). Thereby, local governments are better able to recognize and know about the specifics of this local context. Besides, they are already responsible for the infrastructures and services that need to be adapted (Chu et al., 2015).

UCA strategies or measures differ considerably, but there are some well-known examples. For example, implementing green infrastructures which are mostly used for stormwater management, but also have benefits such as reducing heat, improving air quality and increasing biodiversity (Culligan, 2019). In flood risk management, another UCA strategy, a distinction is made between structural measures – like engineering works and structures – and non-structural measures – what citizens can do to adapt (Michel et al., 2020). Examples are low impact development and water sensitive design.

1.1.2 The complex context of urban climate adaptation

Urban climate adaptation and its governance are a clear example of a wicked problem. Wicked problems can be characterized as problems that are associated with great uncertainties and in which a large number of stakeholders – both public and private – with differing values is involved. These two characteristics lead to diffusive information coming from different stakeholders, conflicting values and therefore no unequivocal solutions to the wicked problems. As will be elaborated in this section, UCA is associated with great uncertainties and a diverse group of stakeholders involved (Dewulf & Termeer, 2015), here defined as its complex context. Since UCA is a wicked problem its context is defined as complex. It is not a complicated problem, which would mean that straightforward solutions are available. The context of UCA is defined as complex and not as complicated since it consists of a range of different components and since no straightforward solutions are available.

Although no straightforward solution is available in such a complex context, the approach in UCA is often traditional, in other words, hierarchical and centrally organized (Dunn et al., 2017; De Graaf & Van der Brugge, 2010). This approach originates from conventional water governance that in most cities, especially in delta areas, is at the core of UCA strategies (Nieuwenhuis et al., 2019). The complex context of UCA asks for a new, more flexible approach of decision-making. This can be achieved by implementing examples of successful strategies as water sensitive urban design, water safety plans (Dunn et al., 2017) and adaptive delta management (Dewulf & Termeer, 2015).

These strategies deal with three challenges that together comprise the complex context: uncertainty, interrelatedness and networks of stakeholders involved. Firstly, the complex context is about the uncertainty that is inherent to climate change and the challenge of dealing with that uncertainty. Most uncertainty is in “the magnitude of climate change, the speed of climate change, the implications for specific areas and regions and the policies that should be implemented to mitigate and/or hedge against the adverse consequences of climate change” (Marchau et al., 2019, p. 61). At present, most water governance is centralized, large-scale and path-dependent (Dunn et al., 2017). Thereby, it does not have the flexibility to deal with uncertainty and the possibility of lock-in effects is great (Hurlimann & Wilson, 2018).

Secondly, climate adaptation asks for the “re-examining of boundaries” (Dunn et al., 2017). The system boundaries of UCA and water governance are hard to define. However, treating the system as a closed system is not possible because of horizontal and vertical interrelatedness. This calls for an integrated approach.

Vertical integration is needed because multiple government tiers are involved in water governance (e.g. Mancilla Garcia et al., 2019; Fidelman et al., 2013). Geographical and hydrological boundaries, e.g. of watersheds, do not correspond with social and statutory boundaries – e.g. political and administrative boundaries. Coordination and collaboration between different government tiers is needed, in other words, a multi-level governance approach is required.

Horizontal interrelatedness means that different parts of the water cycle need to be considered in its entirety (Kirshen et al., 2018), but also concerns the connection with other challenges in urban areas such as urbanization, changing demographics, climate mitigation (e.g. the energy transition), digitalization etc. (Nieuwenhuis et al., 2019). A holistic and comprehensive approach in which collaboration with different policy sectors such as spatial planning (Hurlimann & Wilson, 2018) or economic affairs occurs, is needed.

The third challenge following from complexity is about the involved and affected actors in UCA and the network in which they act (Dunn et al., 2017). As a consequence of vertical and horizontal interrelatedness there are many stakeholders to deal with, such as different government tiers, companies, social housing associations, and NGO's. Likewise, the relations between the stakeholders – the network they are acting in – need to be considered. Collaborating with or facilitating stakeholders asks for considering all their perceptions, (contradictory) interests and relations. But it also creates the

opportunity of using the knowledge of stakeholders, providing them with the knowledge they lack in order to enable them to contribute to adaptation strategies and manage or facilitate collaborations between stakeholders (Driessen et al., 2018).

A specific type of dealing with stakeholders that is also needed in UCA is participation of citizens (Driessen et al., 2018). Participation encompasses the involvement of private actors in, bottom-up initiatives and “appropriate normative rules for dealing with distributional challenges” (Driessen et al., 2018, p.11). But when it involves specifically the involvement of citizens in policy or decision making it is referred as public participation. The focus of the proposed research is on public participation in UCA, which is elaborated in the following section.

1.1.3 Public participation in urban climate adaptation

The definition of public participation used in this research is defined by Few et al. (2007, p. 47): “securing the active involvement of a broad range of stakeholders in decision-making and action. Such participation encompasses input into formal decision-making structures, as well as into the deliberative democratic fora”. Similar to Few et al. (2007) this research focuses on participation coordinated by governments instead of on participation emerging from initiatives by residents, since the participation method studied in this research focuses on a consultative form of participation in which participants state their preferences for a portfolio of policy options (see Section 1.1.4).

Public participation in UCA can take several forms. Chu et al. (2018) make a distinction between “consultative approaches”, “deliberative and collaborative approaches” and “planning support tools” such as experiments, pilots and serious games. Sarzynski (2015) found six forms of participation in UCA by using a framework in which the participants, the moment, effects and intensity of participation and the reason for participation are considered. The following forms exist: government-led planning with little participation, planning led by non-government actors such as university researchers, inclusive planning initiatives in which the voice of citizens plays a central role, public-private partnerships in which citizens have a minimal role, bottom-up initiatives (Scholten et al., 2015) and co-creation approaches (Engberg, 2018).

The implementation of participation processes can follow from three different rationales: a normative, substantive or instrumental rationale (Glucker et al., 2013). The normative rationale covers democratic goals behind participation, such as enhancing the democratic capacity of citizens. But also to ensure a fair distribution of costs and benefits among citizens and to ensure a consequential role for marginalized groups in decision-making that affect their life (Shi et al., 2016; Chu et al., 2015). Participation processes that follow from a substantive rationale ensure the substantial quality of decisions. As mentioned before the local level is particularly important for effective UCA strategies. Participation can help reveal this local knowledge and let it contribute to the policy making process by enhancing the quality of plans, projects or policies (Driessen et al., 2018). When policy makers use participation to legitimize their decisions, to ensure trust between parties or to prevent conflict between parties they have an instrumental rationale (Glucker et al., 2013). In the case of UCA, this embodies, for example, the identification of citizens’ needs and an increase in awareness on climate change effects among participants (Shi et al., 2016).

Participation following from all three rationales can contribute to the effectiveness of UCA by giving a democratic foundation to decisions, by enhancing the quality of measures because of mobilizing local knowledge or by increasing the legitimation of decisions. However, participation is not a guarantee for a successful adaptation strategy (Uittenbroek et al., 2019; Sarzynski, 2015; Few et al., 2007). As argued by Uittenbroek et al. (2019, p. 2544) this is because “public participation is often limited in scope and both local governments and citizens seem to struggle with the design and the objectives of participation processes” and therefore can frustrate effective UCA. Accordingly, the

problems associated to participation, follow from the two perspectives of both the local government (represented by policy makers facilitating the participation processes) and the citizens (i.e. the participants).

The policy maker pursues useful participation, which can be defined as the extent to which the facilitators' objectives for the participation process – following from the three rationales mentioned before – are achieved. Useful participation reflects the viewpoint of the policy maker. The objectives are formulated before the participation process takes place in democratic fora and define the task that a policy maker needs to perform in the process. However, during or at the end of the process it may turn out that additional objectives have been achieved.

On the basis of their perception of useful participation, the policy makers define how procedural factors are established (e.g. determining who can participate, in what form and how the access to information is arranged) and how contextual factors (e.g. institutional or attitudinal barriers) are influenced. These procedural and contextual factors together form the participatory environment. In establishing a participatory environment, the different objectives for participation conflict with each other and with other objectives in the policy making process. This is also observed when participation occurs in complex contexts, such as that of UCA. Firstly, because of the uncertainty in UCA, participation processes may not be a priority for governments as its outcomes are unclear and can increase the uncertainty. Besides, it may frustrate the anticipatory strategy that governments already have adopted (Few et al., 2007). Moreover, public participation also has to comply with the vertical and horizontal integration of UCA. Participation needs to be included in a multi-level governance approach and in the participation process other challenges in society should be considered, which makes it hard for other than professionals to participate. Finally, public participation takes place next to other interaction processes between governments and stakeholders. So, participation adds an extra dimension to the complex context of UCA.

The complex context in which participation takes place results in an unsatisfactory role in decision-making processes. For policy makers, participation often is a secondary thing that needs to be done, in which other challenges following from the complexity of UCA are not involved and no attention is given to the personal sphere of participants. Besides, civil servants often don't have the capacity to fit participation process into the complex process of policy making (Wamsler et al., 2019).

Participants require meaningful participation. Participation is meaningful in the case that all possible or existing viewpoints of interest are included in the process (inclusion) and that the affected population is represented in the process (representation). Moreover, this inclusion and representation should lead to influence on the process and outcomes (Few et al., 2007; Arnstein, 1969). In this research, influence is defined as the extent to which the input of participants is noticeably – observed in the outcome or argumentation behind the outcome – and significantly – the weight of the citizens' input is reflected in the outcome or argumentation behind the outcome – part of the policy and decision making process.

Meaningful participation is partly dependent on the outcomes of useful participation. As mentioned before, the perception of useful participation by policy makers in a specific policy and decision-making processes results in a participatory environment. This environment should ensure the enabling of participants to join participation (Jiménez et al., 2019). For example, the environment shaped by policy makers affects representativity. Participation processes often fail in providing place for everyone to participate, defining who is participating in which role and in arranging actual influence on the outcomes of decision-making processes (Few et al., 2007). Reasons for these problems regarding representation are “the resulting choice or self-selection of individuals and organisations” (Few et al., 2007, p. 50) or that in practice you still need to know the right people to have influence

(Sarzynski, 2015). The lack of support for meaningful participation by the environment is also instigated by the fact that characteristics of participants are not considered by policy makers. Participants differ widely in their attitudes towards participation and the subject of the process, their experience in participation processes and their capacities (e.g. Jiménez et al., 2019). For example, participants can be faced with a high threshold for participation since you often need to speak in public in participation processes or participants may have disappointed, false or unrealistic expectations on their impact in the participation process and on its outcome.

Thus, the perception of useful participation by policy makers forms the participatory environment. This environment determines the extent to which participation are enabled to join the participation process and therefore influences the extent to which participation is meaningful (see Figure 1.1). The extent to which useful and meaningful participation correspond with each other influences whether participation is effective. Rowe & Frewer (2005) define participation in which both the concepts behind meaningful and useful participation are safeguarded as effective participation.

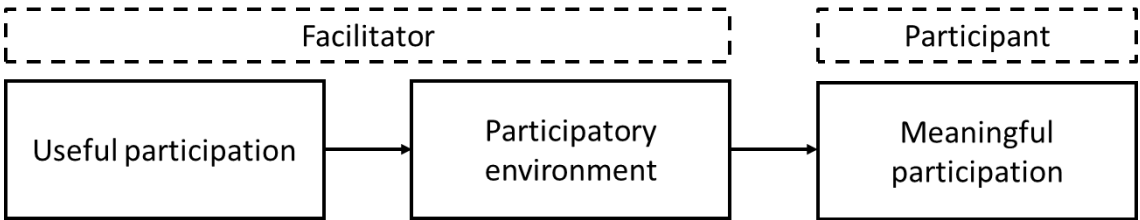


Figure 1.1 The role of information provision in connecting useful and meaningful participation

One of the key elements in the enabling environment, and thus in establishing effective participation, is the flow of information. This flow of information originates from an information asymmetry between the policy maker and the participant (Ianniello et al., 2019). Policy makers have all the information about the subject of the participation process and participants depend on the information provision by policy makers to be able to join in participation processes. The facilitator therefore transfers information to the participant. However, only a transfer of information will not solve the inequality between policy maker and participant. Therefore, the participant needs to be empowered (Arnstein, 1969). Here, empowerment is defined as being enabled by the information provision of the facilitator to give substantiated input. This substantiated input comprises input by participants based on complete, correct and relevant information that enables participants to form motivated, informed and deliberated opinions and preferences. For empowerment, a process of capacity building needs to start in which participants learn about the subject matter and the participation process in general (Blackstock et al., 2007). In this learning process, information provided by policy makers is processed by participants into knowledge.

However, the information provision often does not enable the empowerment of participants. The problems associated to information provision in public participation materialize in complex subjects such as UCA. UCA is a complicated – because of associated technicalities – and complex – see before – subject matter that asks a lot from participation with regard to knowledge, where the policy maker possesses this knowledge. First of all, quite some knowledge on climate change and adaptation is required to assess the uncertainty and risks involved and how that effects local communities (Sarzynski, 2015). This complicates the inclusion of citizens that have no or limited prior knowledge on UCA. Likewise, the interrelatedness with other challenges and the multi-level governance needed makes UCA hard to grasp for people that are not working on UCA on a daily basis. This translates in participation processes that tend to have an overrepresentation of high educated people with knowledge of legal processes (Brink & Wamsler, 2018). It appears that the information provision often does not meet the demand or needs of participants.

1.1.4 Participatory Value Evaluation: a method for mass participation

Participatory Value Evaluation (PVE) is a webtool-based participation method that is used to increase participation by others than the usual suspects. In PVE, respondents are asked to allocate a budget to a portfolio of projects that reflect real policy options, therewith evaluating the projects by stating their preferences. PVE has the potential to provide for meaningful participation, which is reflected in the following four characteristics (Mouter et al., 2018; Mouter et al., 2019a). Firstly, participants are informed about the different options that decision-makers can choose from and gives insight in the trade-offs to be made by policy makers. Secondly, in case decision-makers commit to the outcomes of a PVE, citizens are given a voice in public evaluation and decision-making and therefore the decision-making process becomes more transparent. Thirdly, the method enables mass participation, increasing the representativity of citizens in participation. Finally, the method mobilizes local knowledge – by asking participants to motivate their selection – and gives respondents the possibility to take other effects than given in the PVE into consideration.

In PVE information is provided by policy makers that define the portfolio of projects and how these projects are presented in the tool. The information provision is influenced by the notion of useful participation by the policy maker on the specific subject matter. The content of the policy options is based on the objectives for participation of the facilitator. For example, the selection or presentation of policy option will be different for participation from a normative rationale compared to that from a substantive rationale. Where the portfolio of options in a normative participation process will reflect all real possible options to simulate the decision-making process, the portfolio in the substantive participation will reflect the solution field with options that are contrasting in order to elicit stated preferences of participants. Besides, the objectives for participation also form the basis for the demarcation of the problem presented to participants.

And again, the choices of policy makers on what information is provided also seems to influence the meaningfulness of PVE. In former PVE-experiments respondents state they do not have the knowledge to make a choice or they do not trust their neighbours in making the right choice (Mouter et al., 2018). And although respondents are satisfied with the outcome of their evaluation – probably because people take the experiment seriously as it can have serious consequences (Mouter et al., 2019a) – it turns out that respondents often make choices on basis of information that is not given in the PVE-experiment. With arbitrary choices as possible consequence (Mouter et al., 2019b). Besides, it turns out that task complexity – especially in subjects that are quite technical – often is perceived to high (Dartée, 2018). This raises the possibility of self-selection, for example, when participants with limited knowledge on the subject quit the experiment (Pak, 2018). Likewise, it turns out that respondents with limited knowledge on a subject are more receptive to framing (De Geus, 2018). In other words, policy makers can manipulate the outcomes of the PVE by providing their selection of information thereby steering the evaluation to a preferred outcome. These studies indicate that information provision in PVE is not always in line with the required information by participants and that the information provision can influence the outcomes of PVE.

1.1.5 Knowledge gap and main research question

From this literature review it follows that the perception of policy makers on useful participation often influences meaningful participation of citizens. Policy makers pursue useful participation. The pre-defined objectives for the participation process – and the policy making process as a whole – form the basis for the design of a participatory environment. The choices policy makers make on basis of their perception of useful participation determine whether the environment is enabling for the participant. In other words, the choices policy makers make directly influence the ability of participants to join and be part of the policy and decision-making process. Participants seek for meaningful inclusion in decision-making processes but often lack the capacity, experience or motivation to make their

engagement effective and of significant influence. When participants are not supported in having a substantiated input in the process, participation processes only serve as vehicle to express opinions that are not taken seriously by policy makers. Only when useful and meaningful participation coincide the participation will be effective.

Information provision is key in making participation effective. Participants lack the needed knowledge for substantiated input because the information provision from facilitators does not meet their demand or needs for information. Especially, when participation is about complex subjects as UCA. However, it is still unknown what such information provision should look like or how facilitators need to ensure or provide for a flow of information that achieves meaningful participation but at the same time corresponds with their perception of useful participation.

The tension between meaningful and useful participation is also perceived in PVE. Policy makers need to include the complex context of UCA into decision-making. However, this can be hard to do in a participation process. Simplification of information to involve citizens with no prior knowledge can, especially in online participation, result in outcomes that do not reflect reality (Pfeffer et al., 2013) and therefore decrease the usefulness of outcomes. Moreover, as mentioned before, policy makers decide on the content of the PVE-survey and what the consequences of the results are. Thereby they influence the meaningfulness for participants. However, this also shows that the tension between useful and meaningful participation is a false tension. If participants do not get a chance to make a substantiated choice or their preferences are not seriously considered in decision-making, one of the main advantages of PVE – the mobilization of local knowledge - is neglected. Enabling participants to engage themselves, to state substantiated preferences enhances the usefulness of participation for the whole policy-making process and makes participation more meaningful.

It is evident that participation is effective when the environment in which the participation occurs meets the requirements of both useful and meaningful participation. Information and knowledge can play a key role in making participation in a complex subject as UCA in PVE more effective. However, it is still unknown how information or knowledge should be presented and selected to empower participants and let meaningful and useful participation coincide. The research question that follows from this knowledge gap is:

Main research question

How to provide information to participants – with little prior knowledge on a complex subject such as UCA – in PVE in order to provide for both meaningful and useful participation?

1.2 Research objectives and relevance of the research

1.2.1 Research objectives

The main objective of this research is to gain insight in the effects of information selection and presentation on the capacity of participants to form informed opinions on UCA measures and strategies in consultative participation processes, especially in Participatory Value Evaluation. Therefore, it is researched to what extent information provision can contribute to meaningful participation for participants. UCA is a technical subject, which can be an obstacle for people with no or little prior knowledge on UCA to engage themselves in a consultation process. However, the information provision is designed by the facilitator on basis of their perception of useful participation. Only when meaningful and useful participation are combined, participation will be effective. Thus, the research aims to connect meaningful and useful participation by improving the information provision in participatory processes in UCA.

1.2.2 Scientific relevance

Considerable studies have been executed on participation in UCA and the related area of water governance. In these studies, many methods have been introduced and criticized. From all this research it follows that the access to complete and correct information is needed for meaningful participation of participants and to enable them to make informed choices or decisions. Especially, in very technical subjects with several elements of complexity such as UCA. This research contributes to the scientific knowledge on the role of information in public participation processes by comparing two information provision approaches in the new participation method PVE. Thereby, the effects of information provision following from useful participation on meaningful are analysed. To this moment, empirical research on information provision in participation is directed towards the influence of choices by policy makers on the input of participants. However, this research adds empirical data on the use of PVE in UCA and the role of information in participation processes by relating it to the information required by participants.

Thereby a new method – PVE – is tested and evaluated. Information provision has a very important role in this new method that combines participation and evaluation. The method can be used to inform citizens but also to consult citizens. However, that is only possible if participants are properly informed and when the information provision reflects the needs of participants. Several studies have been conducted on the effects of information in PVE. For example, De Geus (2018) analysed the effect of framing on the outcomes of PVE and Peeters (2020) studied the effect of textual or numerical presentation of attribute values on choices made. However, where these studies focused on the effect on the choices made by participants, this research analyses both the effect of the information provision on choices made and whether participants feel enabled to make a substantiated choice. Besides, this research differs as it involves information provision approaches in a complex and technical subject that also has controversial aspects, namely the need for climate adaptation.

1.2.3 Societal relevance

As mentioned in this introduction, the impact of climate change is becoming visible. Mitigation of these effects is no longer enough and should be combined with climate adaptation. In UCA participation is key, since local knowledge should be mobilized to design effective measures and strategies. However, in practice participation processes seem to fail in representing all citizens or fail in providing satisfactory results for policy makers. The recommendations following from the results of this research should provide policy makers with guidance to improve their participation processes, especially in improving the information selection and presentation. Thereby, this research can contribute to an increase in effective participation processes in UCA.

Special attention in these recommendations go to the case study for this research, the neighbourhood Reyeroord in Rotterdam. However, the aim is to ensure that these recommendations will, to some point, be generalizable to other situations in which participatory policy-making processes are used to decide on UCA measures or strategies. Moreover, this research contributes to the implementation and improvement of PVE. Thereby, it helps to increase the use of this method that has great potential to provide mass-participation in technical subjects.

1.3 Research approach and sub research questions

To answer the main research question, an information manipulation experiment is performed. In this experiment, two information provision approaches are tested on whether they can be used to connect meaningful and useful participation. The approaches are tested by manipulating the information provided in a PVE-survey. This PVE-survey presents policy options to participants and the participants

state their preferences for these options by allocated points to the options. However, the information manipulation experiment is embedded in a three-step research approach showed in Figure 1.2.

Before the information manipulation experiment can be designed the following undefined points need to be elucidated, which is all done in the first step of the research. Firstly, meaningful and useful participation need to be defined. Subsequently, the role of information in participation processes needs to be analysed to provide input for the information provision approaches. Finally, a theoretical framework for the evaluation of the results needs to be constructed (see step 3). The results in the first step form the basis for the design of the information manipulation experiment performed in the second step. Apart from the PVE-survey the information manipulation experiment also includes a questionnaire. This questionnaire is used to perform an evaluation of the experiments by participants and forms the basis for step 3. Besides, in step 3 the PVE method, the information strategies and the PVE outcomes are not only evaluated by participants but also by policy makers. The experiments are performed in the neighbourhood Reyeroord in the city of Rotterdam.

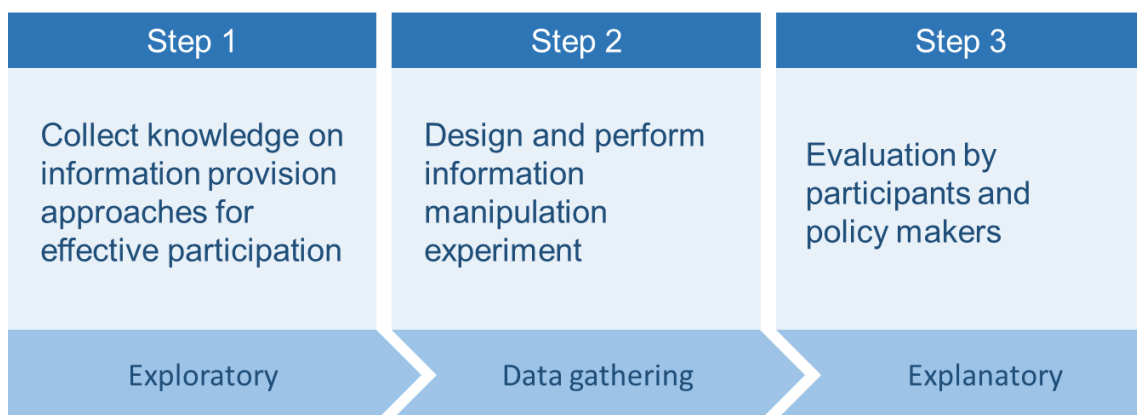


Figure 1.2 Steps in the research approach

In the first step of the research approach – the exploratory research – the first two sub research questions are answered.

1. *What are the effects of information provision – shaped by the perception of useful participation by policy makers – to participants on their ability to participate meaningfully when asked to give their input via PVE?*

The goal of the first sub research question is to obtain a theoretical understanding of the role of information in connecting useful and meaningful participation. Therefore, a literature review is performed. This review also delivers input for the approaches of information provision tested in the information manipulation experiment in step 2 and a theoretical framework to design the evaluation by participants and by policy makers in step 3.

However, as mentioned in the introduction, participation in practice often differs widely from the theoretical perception on what a proper participation process is. Therefore, the results of the literature review are combined with the results of the second sub research question:

2. *How do policy makers and civil organisations, as facilitators of participation, perceive optimal information provision for enabling participants – with no or limited prior knowledge on UCA – to participate meaningfully?*

This question must provide knowledge on what professionals working in participation in Rotterdam think about proper information provision in participation and what their perception of useful

participation is. This question is answered by means of expert interviews and a document analysis. Both policy makers as employees of civic organisations working in participation are interviewed to ensure different viewpoints are included in the analysis. The results are compared with the results of the literature review. This comparison will lead to the final approaches of information provision used in the information manipulation experiment and is used to complement the framework used for the evaluation by participants and policy makers. Besides, the interviews and document analysis should elucidate what policy makers in Rotterdam regard as useful participation in order to compare this to the evaluation by policy makers at the end of the research.

By combining the findings of the first two sub research questions a research design for the information manipulation experiment is composed. Firstly, the exploratory research results in approaches on how information should be provided. These approaches are translated into information manipulation treatments on basis of which the information in the PVE-survey is varied. Secondly, the questionnaire is designed on basis of the theoretical framework. Analysing the results of the information manipulation experiment will provide an answer to the last three sub research questions.

3. What is the effect of different information provisions on the outcomes of a PVE, what are similarities and differences?

The aim of the third sub research question is to identify which policy option is preferred by the respondents and if this is influenced by the information provision treatments. Therefore, the outcomes of the PVE-survey are analysed with a multiple regression analysis.

After filling in the PVE-survey, respondents are asked to fill in the questionnaire. In the questionnaire the respondents state their motivations for their selection of points and are asked what their attitudes (rated on Likert scales) towards the information provision, their own empowerment and the PVE method are. Thereby the following sub research question is answered:

4. How do participants evaluate the PVE-surveys with different information provision in terms of quality of the information provision, empowerment and the method of PVE? What are similarities and differences?

The answers to the questionnaire are analysed with independent samples t-tests and Mann-Whitney U tests and a qualitative analysis for the open questions. The results of the analysis will show if the motivations and attitudes of respondents are influenced by the treatments.

Finally, the experiment is evaluated by policy makers working on the case studied. This is done by an interview similar to the expert interviews used for question two. The evaluation provides for an answer to sub research question five:

5. To what extent do the outcomes of the different PVE-surveys meet the needs and wishes of facilitators of participation, i.e. policy makers?

The evaluation by policy makers should identify whether the PVE-surveys with their own information provision treatments are useful for the policy makers and what they would change to the information provision or the PVE method.

The sub research questions, the used methods and the output are summarized in the Figure 1.3. An elaboration on the methods used and the characteristics of the case study can be found in Chapter 2.

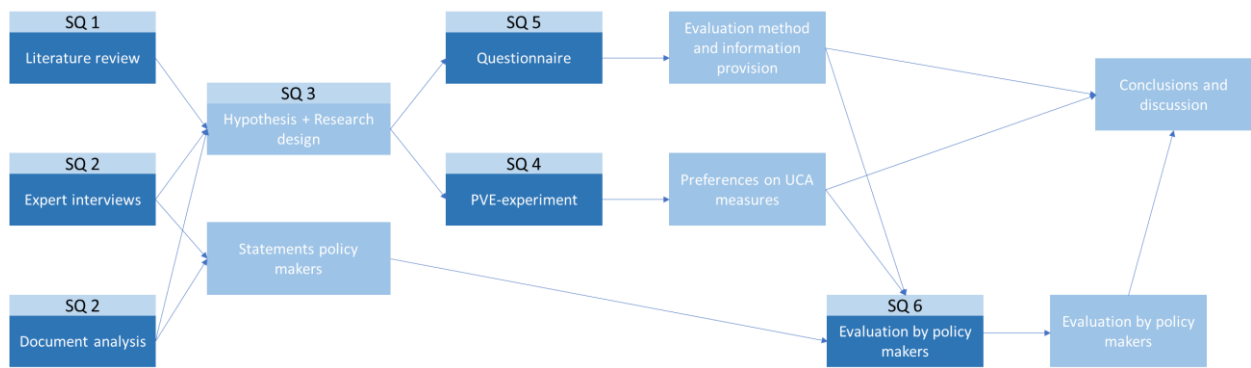


Figure 1.3 Research flow diagram

The research approach results in a mixed methods approach that starts exploratory and ends explanatory (Creswell & Plano Clark, 2017). In mixed methods research it is about combining quantitative and qualitative research. It is exploratory when quantitative is preceded by qualitative research in order to identify the existing knowledge on a subject (Creswell & Plano Clark, 2017). In this research, the qualitative information coming from the literature study and the interviews in step one provides the exploration of the subject and enables to design the information manipulation experiment that will provide quantitative information. Mixed methods research is explanatory when results from quantitative research are explained by qualitative research (Creswell & Plano Clark, 2017). In this case the outcomes of the PVE-survey are explained and interpreted on basis of the results of the evaluation by participants and by policy makers.

1.4 Reading guide

This report is structured as followed. In the next chapter, Chapter 2, the different methods used in this research are elaborated. Thereby, the benefits and limitations of the different methods are discussed. Subsequently, in Chapter 3, the research design is introduced. The chapter starts with the results of the literature review, expert interviews and document analysis and ends with the set-up of the information manipulation experiment, including the PVE-survey and the questionnaire. In Chapter 4 the results of the information manipulation experiment are discussed, together with the results of the evaluation by participants and policy makers. Thereafter, the conclusions are presented in Chapter 5. This report ends with a discussion and reflection on this research in Chapter 6.

2 Methodology

In this chapter, the used methods and how they are applied are discussed. The advantages and limitations of methods are identified and it is discussed how the limitations are tackled. The chapter follows the chronology of the research steps. It starts with the literature review. Thereafter, the case study is introduced, followed by an elaboration on the expert interviews and the document analysis. Subsequently, the PVE method and the information manipulation experiment are discussed. In the sixth section, the evaluation by participants is introduced. The chapter ends with a discussion of the evaluation by policy makers.

2.1 Literature review

To answer the first sub research question, a literature review is conducted. A literature review was chosen to determine the framework for the research design. In other words, the review should provide operationalized criteria that enable to test the researched information selection and presentation strategies. The framework is therefore the basis for the questionnaire that will follow the PVE-survey and the evaluation by policy makers. Furthermore, the literature review is used to gain a detailed understanding of the state-of-the-art literature on information selection and presentation in participation. Thereby, the review provide input for the formulation of information provision approaches which are tested in the information manipulation experiment.

Literature was collected using the database of Scopus. For an overview of the search words used, see Appendix A. In addition, part of the selection of article was found using backwards snowballing, see Appendix A for these articles and their source articles. Snowballing was used because some articles from the Scopus database search included interesting references for this review. The chosen articles addressed the tension in participation or addressed the role of information and knowledge in public participation.

Publications were included in the analysis if they met the following criteria. First, articles should address public participation in environmental issues, preferably in UCA, water governance or water management. Moreover, the articles needed to discuss the role of information and knowledge in the participation process or discuss the required procedural elements for public participation. In addition, several articles focused on online participation were selected, since PVE is a form of online participation. The selection of articles was firstly on basis of the title and the prominence of the articles. Thereafter, the selection was based on the content of the abstract.

2.2 Case study: Reyeroord, a neighbourhood in Rotterdam in transition

The research is executed in Reyeroord, a neighbourhood in the south-east of Rotterdam. Rotterdam is a frontrunner in UCA. According to Dunn et al. (2017, p. 71) Rotterdam is “increasingly regarded as a global leader in adaptive and resilient urban water management”. Thereby, the approach on UCA in Rotterdam has a strong emphasis on sharing knowledge between science and policy (Dunn et al., 2017) and a focus on public participation (Gemeente Rotterdam, 2019a). Rotterdam was also chosen because of the good contacts between the municipality and the Delta Futures Lab.

The Rotterdam approach on UCA is characterized by its interrelatedness with other policy terrains, especially spatial planning but also societal challenges in the city (Dunn et al., 2017; De Graaf & Van der Brugge, 2010). Therefore, the city was able to change the narrative from one that was technical and focused on UCA to one that is broader – everything that is related to the liveability of the city -, more contextualized and therefore more appealing to citizens (Dunn et al., 2017). Rotterdam also collaborates intensively with other sectors and private parties, emphasizes the importance of learning

from experiments and created a business model on spreading their knowledge on UCA to other cities and countries (Dunn et al., 2017). So, with regard to the described complex context of UCA, Rotterdam has tackled the interrelatedness – by coupling different challenges and transitions, and a multi-level perspective –, the uncertainty – by implementing an adaptive water management approach and by an experimental approach –, and the dependence on other actors – by intensively collaborating with companies and other organized private parties. However, the need for public participation was underestimated until a few years ago (Van Vliet & Aerts, 2015).

Therefore, the Municipality of Rotterdam implemented a new program: *Rotterdams Weerwoord* (Rotterdam Weatherwise). This program is the successor of Rotterdam Adaptation Strategy that followed from Waterplan 1 and 2. The aim of Rotterdam Weatherwise is to upscale and accelerate all current policies by implementing practical measures and actions on different city scales (Gemeente Rotterdam, 2019a). Another reason for the program is the fact that 40% of the land and real estate in the city is owned by the municipality. In these areas the municipality can implement adaptive measures in their own real estate, real estate of schools and sport accommodations. Next to that, Rotterdam aims for innovations and exemplary projects in their own real estate. However, in order to make the other 60% of the city climate adaptive, private parties need to be stimulated to take action on their properties. The municipality wants to achieve this by granting subsidies, forming new agreements and implement regulation. Citizens are stimulated by means of the *wijkaanpak* (neighbourhood approach) of the Weatherwise program. Thereby, a risk dialogue and broad communication are two starting points. In the neighbourhood approach, three different approaches can be distinguished. First, Weatherwise organizes activities in the neighbourhood that are low-key and fun and that aim to make citizens aware of climate adaptation. Secondly, the program foresees in a collaboration with organized parties such as social housing associations to work on projects on street and neighbourhood level. Finally, the program wants to be involved in big infrastructural projects to find so-called *meekoppelkansen* (opportunities to connect challenges) (Gemeente Rotterdam, 2019a).

The Weatherwise program focuses on 6 climate themes: more intensive precipitation, longer periods of heat, longer periods of drought, rising sea level and higher river levels, too high or too low ground water levels and related to that subsidence. However, the program aims to connect the challenges on these six themes to other transitions in the city such as the energy transition and digitalization (Gemeente Rotterdam, 2019a). Thereby, water is often a budget generator for working on other challenges.

A similar approach is adopted in the neighbourhood Reyeroord. The replacement of the sewage system in the neighbourhood is used as a starting point to redevelop a green area in the neighbourhood. Next to the Weatherwise program, the neighbourhood has another program: Reyeroord+. In this program, Rotterdam is experimenting with tackling several transitions in one neighbourhood. The integrated approach for achieving eight ambitions (sustainability and energy transition; circularity; smart use of data; liveability; bridging the generation and culture divide; use talents: healthy family finances; healthy lifestyle) must be an example for the rest of Rotterdam on how to cope with urban transitions. The motivation to start this experiment in Reyeroord, was the need to replace the sewage system in 2021. In Reyeroord there is also a focus on participation, especially co-creation (Gemeente Rotterdam, 2020b). The combination of the integrated approach in tackling UCA amongst other things in a participatory way makes this neighbourhood a suitable case for this research.

The chosen focus on the neighbourhood level has three practical reasons. Firstly, the UCA measures and strategies differ between neighbourhoods as they have divergent local contexts, both demographical and physical. This would mean that for each neighbourhood a different information manipulation experiment needs to be set up, and in each different information provision and variations

of this information need to be designed. Secondly, the group of respondents will probably be limited in times of corona, e.g. more efforts need to be devoted to reach possible respondents. A small group of respondents spread over several neighbourhoods makes comparison within neighbourhoods more difficult than when the same group of respondents lives in one neighbourhood. Finally, Reyeroord is a frontrunner and therefore already has several projects on UCA that can be included in a PVE.

2.3 Expert interviews

Expert interviews are conducted to answer the second sub research question. The aim of these expert interviews is to elicit what the perceptions of policy makers and civil organisations are on information selection and presentation for effective participation in UCA. The interviews are complementary to the literature review and should enrich the research by exploring how practice differs from theory (Pfadenhauer, 2009). This is done by analysing what the experiences on the ground are. Furthermore, it allows for a comparison under sub research question 5. For example, the reaction of policy makers in the last phase of the research can be compared to what they have stated in the expert interviews. They may have stated a preference for a particular information provision in participation but evaluate the information manipulation experiment with another information provision strategy higher.

The expert interview is a qualitative method that is used to access knowledge in a quick and efficient way. Interviews are mostly held in the exploratory phase of a research (Bogner et al., 2009). Bogner & Menz (2009) divide the expert interview in three forms. Firstly, it can be used as an exploratory tool. This is done when the field of research is poorly defined and is mostly done to obtain contextual information. Secondly, there is the systematizing expert interview which is about actions and experiences in practice. This type of interview is also exploratory. Finally, the theory-generating interview is used to form a theory. The interviews support the researcher in conceptualizing the theory. Most expert interviews fulfil all three roles to various degrees. In this research the focus is on the systematizing expert interview. It is mostly used to get a picture of how information is used and perceived in practice.

Most important in conducting expert interviews is to define who the expert is. It can be challenging to define what an expert is and to figure out who are experts in the case studied (Bogner & Menz, 2009). Moreover, the definition of the expert has a great influence on the data that comes out of the interviews. In theory different views exist on what an expert is (Bogner & Menz, 2009). It starts with the voluntarist concept of an expert that argues that everyone is “an expert of their own meanings”. However, this conception is not productive for research. The constructivist definition, which argues that it is the researcher who defines what the expert in his or her research or that an expert is formed by societal processes, is more useful in research. Additionally, a theory based on the sociology of knowledge exists, which argues that the concept of an expert depends on the function that one has in an organization or society. To Pfadenhauer (2009, p. 83) an expert is a “person who has privileged access to information and – moreover – who can be made responsible for the planning and provision of problem solutions”.

The experts interviewed in this research are presented in Table 2.1. Four experts were interviewed; two working on participation in UCA at the municipality of Rotterdam and two working for civic organisations that facilitate participation in Rotterdam. The civil servant was chosen as he is responsible for public participation in UCA at the municipality of Rotterdam. As advisor water, participation and climate adaptation he is responsible for the neighbourhood approach of Rotterdam Weatherwise and has access to the information on the approach of the municipality. The external employee of the municipality also works for the WeatherWise program, but as a freelancer. She was asked to join the program as she has experience in *wijkgestuurd werken*, for example, in the *Broodnodig* project in which bread was collected in the city to transform it into green energy. These

two experts fulfil the expert definition of Pfadenhauer (2009). The other two experts are both working for civic organisations that are facilitating public participation, also in UCA. As facilitators of participation processes, they have a lot of experience with communication and information provision on complex subjects. They are valuable sources of knowledge for this research as they bring in empirical insights from a different perspective than the perspective of policy makers. It is expected that the experts working for civic organisations will represent the point of view of the participant. These experts fit in the constructivist definition. Other key players were asked for an interview but did not have the time or recommended me to talk to other experts which they felt were more relevant for this research.

Table 2.1 The four experts interviewed presented with their function and expertise

Expert	Function; expertise
1. Civil servant	Civil servant Municipality of Rotterdam, responsible for neighbourhood approach Rotterdam Weatherwise; working on participation in UCA
2. External employee municipality	Freelancer working for Weatherwise program, founder of Broodnodig; expert in “wijkgestuurd werken”
3. Employee civic organization 1	Working for <i>Opzoomer Mee</i> : organization that facilitates initiatives by citizens; responsible for knowledge sharing
4. Employee civic organization 2	Working for <i>Stichting Tussentuin</i> and lecturer Delta Design at Rotterdam University for applied sciences; involved in several bottom-up initiatives in Rotterdam (e.g. Reyeroord)

The expert interviews are structured as open interviews based on a topic guide (see Appendix B). According to Meuser and Nagel (2009, p. 31) this is the preferred structure “because of the procedural nature and non-explicitness of considerable parts of expert knowledge like tacit or pre-theoretical experimental knowledge”. The interview should invite the expert to speak in narratives as this will elicit knowledge that the experts themselves are not aware of. Therefore, the experts were asked to tell about the procedures they follow within each theme of the topic guide and then were encouraged to give examples. In this way, the steps taken in the decision-making process become clear. In performing the interviews, the interviewees were asked to talk from the point of view of their institution (Meuser & Nagel, 2009).

As mentioned before, the expert interviews in this research are systematizing expert interviews in which actions and experiences in practice are elicited. Bogner & Menz (2009) argue that a topic guide is the best structure for this type of interviews. However, the systematizing expert interview also asks for comparable data. This was not fully possible, as the interviewees do not work in similar institutions. Nonetheless, by using the same topic guide for each interview it was tried to keep the data as similar as possible.

Where the interviewee has an influence on the data that comes out of the interview, this is also the case for the interviewer. Pfadenhauer (2009) argues that the interviewer should be a quasi-expert. In other words, there should be parity between expert and interviewer. However, Bogner & Menz (2009) advocate the interaction model, which means that an interviewer can have different roles (co-expert, expert from a different knowledge culture, as a lay person, as authority, as accomplice as potential critic), also a role that is not in par with that of the expert. Nonetheless it is important that the interviewer is aware of his or her role and that the interviewer acts on it. As a master student parity can be problematic. A possibility could be that experts will not always take you seriously, especially if they do not regard you as equal.

Another limitation of expert interviews is that the perception of an expert has effects on the data that comes out of the interviews. To overcome this, the expert interviews are complemented by the literature study and the document analysis. Moreover, the inequality between expert and interviewer was minimized by ensuring that I as interviewer communicated with the experts as an expert would do with other experts (Pfadenhauer, 2009). In this way it is prevented that the expert will begin educating the interviewer or exaggerate or play down their answers. Besides, the interviewer should ensure he is optimally informed about the interview (Meuser and Nagel, 2009). Most of the interviews followed the literature study, which ensured I was informed as much as possible.

The analysis of the interviews was done following the framework of Meuser and Nagel (2009). First, audiotapes of the interviews were transcribed. Thereafter, the relevant passages were coded with the codes presented in Appendix B. These passages were compared thematically, and relevant similarities and differences were elicited. The themes followed from the framework that came out of the literature review. Results from both the interview and document analysis are combined with the literature review to complement the framework of the research design and as input for the information provision approaches in the information manipulation experiment.

2.4 Document analysis

Complementary to the expert interview, a document analysis is performed to answer sub question two. The aim of the document analysis is to complement the outcomes of the interviews with information provided in official documents on participation and UCA by the municipality. A document analysis is often done in combination with other methods, mostly to attain triangulation but also to minimize bias and make the research more credible (Bowen, 2009; Mackieson et al., 2019). In this research, the document analysis is used to find differences or similarities to what experts have stated in the interviews. Furthermore, the document analysis is applied to find gaps in the literature or interviews as it is a method “to verify findings or corroborate evidence from other sources” (Bowen, 2009, p. 30). This will help in formulating information provision approaches used in the information manipulation experiment.

A document analysis can be performed in two ways. Firstly, by using a content analysis in which the researcher searches for meaningful passages and describe them. Sometimes this approach is done in a quantitative manner by counting the occurrence of themes. However, as Bowen (2009) argues, it is more important that the researcher shows that they can distinguish the information that is relevant from the information that is not. Secondly, a thematic analysis can be used. In this approach several rounds of reading the documents follow each other. In these rounds coding is applied (Bowen, 2009).

The advantages of a document analysis are that it is an economical approach of doing empirical research that is not affected by the research process. In other words, it does not suffer from reflexivity which other qualitative methods often do. Moreover, stability, exactness and coverage are advantages. However, the method also has its limitations which are mostly related to its qualitative character. The method can suffer from insufficient detail as the document do not fit the research question, documents may be hard to retrieve as they are not always openly accessible and the selection of documents can be biased (Bowen, 2009). Other limitations are related to unstructured approach of research, a lack of transparency and replicability (Mackieson et al., 2019).

The described limitations can be overcome by ensuring a strict structure in the approach of the document analysis that is well documented. The structure of the document analysis is as follows. The first step of a document analysis is to select the documents. This selection is based on “the sources available; the method(s) of data collection; the reliability or validity, quality and richness of data; and

the gaps in the available data” (Mackieson et al., 2009, p. 970). For this research the focus was on documents of the municipality of Rotterdam about how they want to tackle climate adaptation and how they approach participation in general and in climate adaptation. Such government documents have a high quality, as they are publicly available and mostly professionally written (Mackieson et al., 2019). Furthermore, in the selection of articles the criteria of Bowen (2009) were used. Hence, the purpose for which the documents were written, the context they were written in and the audience it was written to were considered. The selection of articles can be found in Appendix C.

In the second step the content of the documents is analysed. In this research, a content analysis was conducted. The five themes, similar to those in the topic guide of the interviews, were used to find relevant passages. The passages were coded with the codes showed in Appendix C. The content of the documents was compared with the results of the interview analysis to find similarities and contradictions.

2.5 Participatory Value Evaluation and the information manipulation experiment

Participatory Value Evaluation (PVE) is an online webtool used for both participation and evaluation of policy options. In a PVE-survey, participants are provided with a portfolio of real-world policy options and a constraint (e.g. a budget or a quantifiable objective). These policy options are formulated by policy makers – sometimes in collaboration with stakeholders – in the prior policy making process. Participants allocate the budget or points to the different options and thereby indicate their preferences. A social welfare function is calculated with advanced choice models on basis of the stated preferences (Mouter et al., 2019a).

As a new online participation method, PVE brings some promising advantages compared to conventional participation methods. PVE fulfils all three rationales behind participation. Firstly, it effectuates the normative rationale as it increases the democratic capacity by facilitating mass participation (Mouter et al., 2019a). But also because awareness is raised among citizens as they are informed about the trade-offs considered by policy makers in decision-making processes (Mouter et al., 2019b). PVE reflects the complexity related to these trade-offs by giving about 5 effects or impacts by each policy options, so-called attributes. Therefore, it is more informing than for example a referendum in which only two options without information about effects are given (Mouter et al., 2018). In addition, PVE reduces or removes several barriers associated to conventional participation methods, such as time, place or skills needed (e.g. public speaking). Therefore, it can broaden the representativeness of participation, as in current participation high-educated white men are overrepresented (Mouter et al., 2019b).

Secondly, the substantive quality of policies is enhanced as PVE contributes to an improved problem analysis. Besides the quantitative results from the choice models, participants are asked to substantiate their choices. These qualitative results can be used by policy makers to include local knowledge and thereby strengthen their policies (Mouter et al., 2018). Also because it can elicit considerations by participants that are not presented in the PVE (Mouter et al., 2019a). However, these effects are most profound when the outcomes of the PVE has real consequences for the outcome of the policy making process, as this results in participants that are really involved.

Finally, the instrumental rationale is fulfilled as PVE extracts a wealth of information about the preferences of citizens and what trade-offs they would make. This information can be used to legitimize decisions, for example, when the policy option preferred by participants is implemented. Furthermore, the outcomes of PVE often reflect a silent majority and therefore can be a means to overcome a polarized public debate (Mouter et al., 2018).

Another advantage of PVE is its flexibility. The method is used in a range of different policy areas. To this moment, PVE has been used for policies in transport planning, the energy transition,

water management, UCA, etc. (Mouter et al., 2019a; Mouter et al., 2020b; Mouter et al., 2019b; Dartée, 2018). Likewise, PVE allows for flexibility in the types of policy options. Options in the transport planning were projects on an operational level, where the options in the energy transition were on a strategic level. Finally, flexibility is provided in the spatial scale. PVE's have been executed for the national to the neighbourhood level. However, some discussion remains on what scale PVE is most effective. Volberda (2020) argues that the respondents relate more easily to projects close to where they live, whereas Pak (2018) indicates that finding a sufficient number of respondents – and thereby the representativeness – can be difficult on such a small scale.

PVE is an online method that allows to attract a younger, more diverse group of participants. However, some barriers still exist. For example, the task complexity that can be high (Dartée, 2018) and the possibility of self-selection because of the need for digital skills (Pak, 2018). Using PVE complementary to other participation can overcome the consequences of these barriers.

PVE is also used as an evaluation instrument. As evaluation instrument it tries to offer an answer to criticism about the widely used method in evaluation in policy making: Cost-Benefit Analysis (CBA). CBA is based on the theoretical framework of welfare economics in which the willingness to pay (WTP) of citizens is calculated and used to determine what the preferences of citizens towards a set of policy options are (e.g. Broadway & Bruce, 1984). The WTP is based on the private income of people. However, from scientific studies it follows that citizens make other different trade-offs when they consider their private income or a public budget. For example, Mouter et al. (2017) found a difference in the weight given to travel time saving compared to safety when respondents state their preference as citizen or consumer. Consumers willing to accept one lethal victim per year in traffic for more travel time savings than citizens.

To deal with the deficit of WTP, experiments in which the willingness to allocate a public budget (WTAPB) were introduced. In these experiments, respondents have to choose between two or three alternatives to which a budget is spent on. However, these experiments do not allow respondents to not spend the budget or choose for a reduction of taxes. PVE uses the same principle as WTABP experiments but also offers the option to save the budget. In a so-called fixed-budget PVE, respondents are asked to allocate a budget or points to a portfolio of projects but can also choose to transfer the budget to the next year (i.e. to not spend the budget). PVE also allows for flexible-budget experiment in which respondents can indicate that they want to change taxes. In a flexible-budget experiment, participants do not have to allocate the full budget, the budget that remains is interpreted as a preference for tax reduction. Thereby, PVE combines the WTP and WTAPB as it involved the private and public income (Mouter et al., 2019a)

PVE theoretically shares all benefits of CBA. It is based on a rigorous theoretical framework, the presented choices are non-paternalistic, it results in a policy advice, it allows for a comparison of policy options and it allows for a calculation of an optimal portfolio. However, more empirical research is needed to determine to what extent PVE provides for these benefits (Mouter et al., 2019b). Furthermore, PVE tackles disadvantages of CBA. For example, PVE allows for the inclusion of broader social goals and ethical considerations. CBA focuses on quantifiable, straightforward goals such as saving travel time of lives. PVE can capture social and “soft” goals which are related to, for example, health, environment or integrity (Mouter et al., 2019b). Furthermore, PVE mobilizes local knowledge whereas CBA uses standardized figures (Mouter et al., 2019b). The outcomes of PVE are therefore adapted to the context in which it is performed. The outcomes of CBA provide for a more generalized image of preferences.

Information manipulation experiment

In this research, the effects of information provision on the outcomes of a PVE and on the evaluation of participation by participants is studied. Therefore, two PVE-surveys are designed. The two surveys present the same policy options and their impacts to respondents; however, the information provision is different. The variation in information provision – so-called treatments – follows from the outcomes of the literature study and the interview and document analysis, see Section 3.3. Similar research designs have been used for studying the effects of information provision: e.g. De Vries et al., (2014); Van Bergen, (2019); De Geus, (2019) and Peeters, (2020).

The PVE is set up following the framework by Peeters (2020). This framework identifies three phases. The first phase encompasses the research design, the identification of policy options, attributes and attribute levels, and the follow-up questions. This first phase is executed in collaboration with the municipality of Rotterdam. In the second phase the PVE is completed and tested. The analysis of the outcomes and the accompanied advice for the municipality are executed in the final phase.

The targeted population of this experiment are the citizens of Reyerwaard older than 15 years, as mentioned in the case description. All citizens can participate in the PVE. Factors that influence the processing of information are important such as attitudes, knowledge level, socio-economic and demographic characteristics (see Section 3.3). Preferably, these characteristics are evenly spread over the two groups of respondents. Therefore, the groups are divided randomly over the two treatments, this will ensure two groups with a similar spread of characteristics.

The quantitative results of the PVE-survey are analysed by using a multiple regression analysis. This enables to examine whether the treatments influence the allocation of points to options or if other factors related to the processing of information are of influence. The motivations that respondents are asked to give for the selected policy options are analysed on the basis of coding (see Appendix F for a code list). These analyses are similar to that of the expert interviews and are used to find and explain differences between the two treatments.

2.6 Evaluation by participants

The effect of the information provision in PVE is evaluated by comparing the outcomes of the PVE. However, participants are also asked to evaluate the experiment. Evaluation of the method is common in PVE (Peeters, 2020) and other research on information provision (e.g. De Vries et al., 2014; Hine et al., 2016; Jones et al., 2017). Respondents are asked whether they think PVE is a satisfying method for participation and to what extent they think that their preferences should be considered in the decision-making provision. In this research, questions about the quality of the information provision and whether participants feel empowered are added to the usual follow-up questions. The research design depends on the outcomes of the literature study and the interview and document analysis, see Section 3.3. However, in this section the method used for the evaluation is already discussed.

The evaluation by participants is done by measuring their attitudes. An attitude is “an evaluation of an object of thought. Attitude objects comprise anything from the mundane to the abstract, including things, people, groups and ideas” (Bohner & Dickel, 2011, p. 392). Attitudes can be measured in two ways: explicit and implicit. The explicit measurement is based on the idea that people can state their attitudes by means of introspection (Schwarz, 2008). The measurement therefore consists of direct questions to the respondent. Implicit measurements were developed to determine attitudes which cannot be reported by people themselves (Bohner & Dickel, 2011). This type of measurement makes use of, for example, response-time-based paradigms. However, in this research the explicit measurement is used. Both explicit and implicit share the same disadvantage of being context-

dependent and the implicit measurement cannot be realized within the format of the PVE webtool and was not suitable for the attitudes measured. Besides, the problems associated to explicit measurement are less evident when two groups of respondents are compared with the same question list – as in this research – than when only one survey is used for one group of respondents (Schwarz, 2008).

In this research the explicit measurement is performed by using Likert scales. When using Likert scales, several statements representing an attitude are presented to the respondents. Respondents score the statements with a 5-point scale with the following points: fully disagree, disagree, neutral, agree, fully agree (Krosnick et al., 2005). The statements used in this research are partly from literature and partly based on the theoretical framework that is the basis for the research design.

When using explicit measurements, the four following elements need to be considered. First, the comprehension of the question or statement by the respondent. To what degree does that match with the meaning the researcher gives the question or statement? This makes the measurement context-dependent but can be minimized by using simple language and unambiguous phrases with familiar words (Schwarz, 2008). Secondly, the way respondents envisage the attitude object is based on the information available to respondents. Respondents use the information that is most easy to retrieve. Therefore, the order of the questions and the order of the responses affect the respondents' image of the attitude object (Schwarz, 2008). Thirdly, there are two forms to explicitly measure attitudes: open and closed questions. In this research, the Likert scales (closed questions) are used. However, they are combined with open questions. The reliability and validity of open questions is higher compared to the closed Likert scales. On the other hand, closed questions allow for longer surveys and the analysis of open questions is time consuming (Krosnick et al., 2005). Therefore, the combination of open and closed questions is chosen. Considering the closed questions, a choice needs to be made about the number of statements and the number of scale-points. Ideally, a big number of statements to measure one attitude is used within the Likert scale method. However, this would result in a very long questionnaire when asked for more than one attitude (Krosnick et al., 2005). Therefore, this research uses at least two statements per attitude. The reliability and validity of the scale is improved when the number of points increases, with an optimum for 5 or 7 points. In this research, a 5-point scale is chosen, since this is the classic Likert scale. Finally, one should consider that respondents tend to fill in answer that are "socially desirable". This can partly be prevented by ensuring anonymity (Schwarz, 2008).

The analysis to study the effect of the two treatments on the attitudes of participants is as follows. The attitudes are measured on Likert scales, which are assumed to be continuous. To compare the attitudes of the two respondent groups independent samples t-test are performed. The independent sample t-test can be used for a dichotomous independent variable – the two treatments – and a continuous dependent variable – here the interval scales on which the attitudes are measured. Since not all attitudes were normally distributed over the treatments, Mann-Whitney U tests were performed which is the non-parametric equivalent of the independent samples t-test. In addition, a factor analysis on the attitudes is executed. The factor analysis shows which statements measure the same attitude and therefore reduces the number of variables. The open questions are thematically coded (see Appendix F for a code list) and used to interpret the results following from the quantitative analysis.

2.7 Evaluation by policy makers

The final step in this research is the evaluation by policy makers working for the Reyeroord+ program. The starting point of the evaluation is whether the results of the participation process are useful, i.e. what the goals of the Reyeroord+ team were behind the PVE-survey. Besides, policy makers will

evaluate the PVE method and the information provision in the experiment. The results obtained in the other steps of the research are used as input for the evaluation.

The evaluation is done by performing an open structured expert interview with three policy makers of the Reyeroord+ program. The topic guide of the interview (see Appendix D) is based on the framework following from the exploratory research. Besides, the results of the PVE-survey and questionnaire are used to reflect upon.

Since the evaluation uses the same form as the expert interviews, it also shares the same advantages and limitations discussed in Section 2.3. However, there are differences as the evaluation involves a different kind of expert. The policy makers interviewed are involved in the case study and were involved in setting up the PVE-survey. Besides, where the expert interviews were used in the exploratory phase of the research, the evaluation is part of the explanatory phase. The outcomes are used as explanation for reactions and choices made by participants and for finding an explanation for whether the policy makers would use PVE in their participation processes.

The analysis of the evaluation is also similar to that of the expert interviews. Again, thematic coding is used, the code list can be found in Appendix D. However, since only one evaluation with three policy makers at the same time is performed, there is no possibility for comparison as in the analysis of the expert interviews. However, this was the only way in which the evaluation could be executed. Due to time constraints at the side of the policy makers and at the side of the researcher only one timeslot could be found.

3 Research design for analysing the effect of information provision on meaningful and useful participation

In this chapter, the research design for analysing the effect of the information provision in PVE on the extent to which participants are empowered to give substantiated input is presented. Therefore, the results of the exploratory research – the literature review in the first section and interview and document analysis in the second section – are discussed and combined into three possible approaches of information provision. The third section discusses the way in which the information manipulation experiment is designed and how the follow-up questions are constructed.

3.1 Results literature review

This section discusses the enabling and empowerment of participants needed in online public participation, especially in PVE. The literature review pursues two goals. Firstly, useful and meaningful participation are defined. Secondly, the role of communication, information and knowledge in meaningful participation and the effects of perceptions of useful participation on information provision are examined. This analysis is the input for the approaches that are tested in the information manipulation experiment and the formed theoretical framework is the basis for the evaluation of the information provision in PVE by both participants (RSQ 4) and policy makers (RSQ 5).

The structure of this section is as follows. First, public participation is defined, both useful and meaningful participation. Subsequently, the enabling environment needed for meaningful participation is discussed. Thereafter, an intermezzo on deliberative participation follows. Fourthly, the need for empowerment of participants is discussed, followed by an analysis of the information provision in consultation of the public.

3.1.1 Public participation

As mentioned in the introduction, public participation is an important part of policy making on UCA. Public participation is defined as the “active involvement of a broad range of stakeholders in decision-making and action. Such participation encompasses input into formal decision-making structures, as well as into the deliberative democratic fora” (Few et al., 2007, p. 47). Policymaking in this research is part of the decision-making process. In the participation process, at least two parties are involved. Firstly, the participants who are citizens that give input in the policy or decision-making process. Secondly, there is the facilitator which is a person or organization that facilitates the participation process. In the case of PVE, policy makers – who decide on the content of the PVE – are the facilitator.

Public participation can be characterized by the goals or objectives that are achieved by the facilitator in engaging citizens. These objectives can be categorized with the three rationales – normative, substantive and instrumental – behind public participation (Glucker et al., 2013) presented in the introduction. Within the normative rationale, one can have the goal to give citizens an influence on decision-making or to ensure that public values are included in decision-making (Beierle, 1999). However, objectives also include the increase of democratic capacity of a society or community, the education of the public, the increase of social learning or the empowerment of individuals or groups that traditionally are marginalized (Glucker et al., 2013). The goal to improve the substantive quality of decisions by public participation (Beierle, 1999) can be placed in the substantive rationale. Improving substantive quality can be achieved by the incorporation of local knowledge and by using participation to validate information gathered from other sources (Glucker et al, 2013). Finally, the instrumental rationale arises when the objective of participation is to legitimize decisions and to

prevent or solve conflicts (Glucker et al., 2013). In the end, this should lead to trust in the final decision maker by citizens (Beierle, 1999).

The goals or objectives behind participation are achieved in different ways. This depends on how the participation process is organized. Therefore, the acclaimed ladder of participation by Arnstein (1969) can be used. This framework categorizes participation processes to the extent that they provide participants with influence on decision-making or that participants are empowered. The ladder begins with manipulation and therapy. These two are forms of non-participation that provide no influence. The next three forms of participation provide for more influence, called tokenism. These are informing the public, the consultation of the public and placation in which selected individuals of a marginalized group are placed in a board to give their opinions. The last three steps of the ladder give citizens power. These are partnership, delegated power and citizen control. Rowe & Frewer (2005) formulated a typology on another variable: the flow of information between participants and facilitator. The authors distinguish three forms of participation. The first one is public communication in which the flow of information goes from the facilitator of the participation process to the participants. When the information flow is directed the other way, it is called public consultation. Public participation happens when the flow of information has no direction.

PVE and public participation

PVE is a webtool which provides for online participation. Falco & Kleinhans (2018b, p. 54) define Digital Participatory Platforms as “a specific type of civic technology explicitly built for participatory, engagement and collaboration purposes that allow for user generated content and include a range of functionalities (e.g. analytics, map-based and geo-located input, importing and exporting of data ranking of ideas)”. These platforms differ considerably from social media platforms which are also used for online participation. As in Arnstein’s ladder, online participation also provides for different levels of influence in participation. Which is also related to the increased accessibility of participation that allows a bigger group of citizens to participate (Ertoï, 2015), something that is also observed in PVE (Mouter, 2018).

When placing PVE in the ladder of Arnstein (1969), it falls in the tokenism category. In PVE participants are informed about policy options by a facilitator. The facilitator in PVE is mostly a policy maker or decision maker within a governmental organization. On the basis of this information, participants state their preference for one or a portfolio of policy options. The public is consulted on what policy option(s) they prefer. Hence, it is both about informing and consulting the public. Within the framework of Rowe & Frewer (2005), this would mean that PVE allows for a two-way flow of information. And therefore, facilitates public participation. However, the emphasis in PVE is on consultation. The information provided is meant to support the consultation part. Besides, there is no obligation in PVE to inform participants about the consequences of the consultation. Falco & Kleinhans (2018b) also concluded that in practice digital participation often leads to one-way communication, while there is the potential for more influential forms of participation as co-production. In addition, Ertoï (2005) concluded that online participation also allows a fourth flow of information, namely that between participants. This flow of information is not possible yet in PVE.

As observed in PVE, real influence of participants depends on the exact implementation of the described modes of participation. For example, when decision makers can guarantee that the input in consultation as defined by Arnstein (1969) is used, it provides for more influence than when consultation is only used for people to give their opinions without consequences for the content of

plans or policies. Also, in the typology by Rowe & Frewer (2005) there are so-called between-variables – such as the selection of participants and whether the information input by participants is set or flexible – that influence the effectiveness of participation processes. In their research, participation is considered effective participation when the process achieves the goals aimed for and whether the process provides for concepts as influence, representativeness, inclusion and empowerment.

The definition of effective participation shows the two angles of civil engagement: useful and meaningful participation. Whether participation is useful depends on the extent to which the facilitators' objectives for the participation process – following from the three rationales mentioned before – are achieved. Useful participation reflects the viewpoint of the facilitator. The objectives are formulated before the participation process in democratic fora and define the task that a facilitator needs to perform in the process. However, during or at the end of the process it may turn out that additional objectives have been achieved.

From the participants' point of view, participation must be meaningful. Participation is meaningful in the case that all possible or existing viewpoints of interest are included in the process (inclusion) and that the affected population is represented in the process (representation). Moreover, this inclusion and representation should lead to influence on the process and outcomes (Few et al., 2007; Arnstein, 1969). In this research, influence is defined as the extent to which the input of participants is noticeably – observed in the outcome or argumentation behind the outcome – and significantly – the weight of the citizens' input is reflected in the outcome or argumentation behind the outcome – part of the policy and decision making process.

The influence of participants comprises four dimensions that reflect the complexity of meaningful participation. Firstly, influence can emerge in the process of participation itself, so-called throughput, or in the output of the participation process (Esaïasson et al., 2017). The participation process can be designed in such a way that citizens are deeply involved (e.g. inclusion and representation guaranteed), however, this does not necessarily lead to the reflection of citizens' input in the outcome of the process. Secondly, there is a difference between objective and subjective influence (Eaïasson et al., 2017; Rowe & Frewer, 2005). Objectively, the influence of citizens can be determined. But this does not mean that participants perceived the process as one in which they had influence, for example, when the outcome differs from the participants' point of view. Subjective influence is also related to the third dimension. This third dimension concerns the relation between the effort of participants and the extent to which it has had effect on the outcome. Participants will be more disappointed in the participation process and outcome when they think they, for example, have invested too much time compared to what they see back in the outcome. Finally, influence is closely related to the enabling and empowerment of participants which is the focus of this research and which is elaborated further in this chapter.

The choices that facilitators make in achieving useful participation directly affect the extent to which participation is meaningful as discussed in the coming sections. Few et al. (2007) advocate that meaningful participation should always be the first goal of participation. Facilitators should always ask the question who is actually participating, whether it is representative for the population and whether the participants have significant influence on the decision finally made. In practice, policy makers or facilitators tend to lose the balance between the different rationales. The instrumental rationale can prevail leading to what Few et al. (2007) call a 'managerial approach'. In that case, policy makers use participation only to legitimize their decisions or policies. When participation is not meaningful or the expectations of participations are not managed, the process can lead to dissatisfaction (Few et al., 2007; Arnstein 1969). However, since meaningful participation is related to the normative rationale there does not have to be a contrast between meaningful and useful participation. This research studies how useful and meaningful participation can be combined and thereby lead to effective participation. The next section discusses what elements are needed for meaningful participation.

3.1.2 Attaining meaningful participation

The participation process should be properly designed to have meaningful participation. Firstly, Uittenbroek et al. (2017) argue that in practice policy makers struggle in finding the right scope which often results in a scope that is too limited. The authors therefore recommend to ensure the willingness of two parties before starting public participation and to ensure that all involved parties have influence on the design and objectives of the process. This approach helps to prevent the ‘managerial approach’. In the case of adaptation, the fact that adaptation is the starting point of the policy making process is already a choice made by policy makers on which participants have no influence. This results in confusion which can be prevented by ensuring participation from the beginning of the policy making process or being transparent in what the conditions or limitation in the process are (Few et al., 2007). A starting point for a design of a meaningful participation process is the principle stressed in a multitude of institutional agreements such as the Aarhus Convention: the principle of Free Prior and Informed Consent (Jiménez et al., 2019). “This entails affected populations being free from coercion or manipulation, involved in decision making before plans are made, having the technical and legal knowledge required to make decisions, and ultimately reserving the right to withhold consent” (p. 2). These are procedural elements that need to be in place to provide meaningful participation.

Secondly, there are several contextual factors to consider. Besides procedural barriers, “physical, economic, institutional, attitudinal and social barriers, as well as other constraints such as gender-stereotypes, self-censorship, power dynamics, and intimidation” may discourage citizens to participate (Jiménez et al, 2019, p. 6). This creates problems with representativity, but also influences the quality of the outcomes of participation. For example, the effect described by Wyss & Beste (2017) that not all people feel free to publicly express themselves in group meetings, which is a conventional participation process. These barriers need to be removed in order to achieve meaningful participation. Furthermore, the size and the heterogeneity of the group of participants needs to be considered (Few et al., 2007). A participant in a small group will have more influence on the outcome but may not represent the heterogeneity of opinions and inputs of all citizens. Thereby, heterogeneity results in the fact that not all citizens want the same participation process.

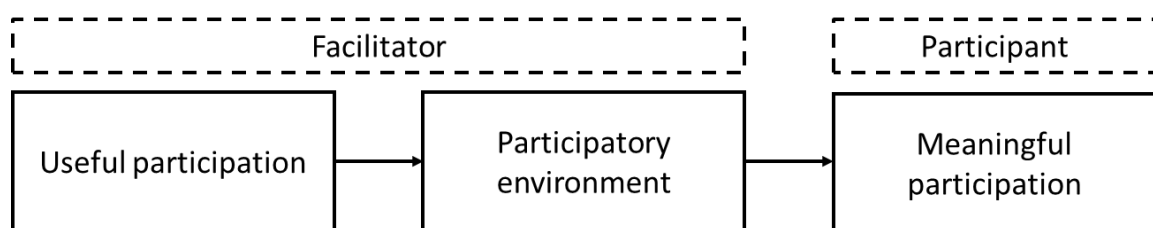


Figure 3.1 The perception on useful participation by facilitators influences the participatory environment of participation. The participatory environment determines to what extent participants can meaningfully participate

The facilitator makes choices – following from their perception of useful participation – on how to shape the procedural and contextual factors. These factors together form the participatory environment and this environment determines the extent to which participation is meaningful (see Figure 3.1). The participatory environment can, for example, obstruct meaningful participation when many barriers are created but can be facilitating when designed properly and with meaningful participation as an objective. An environment in which both the procedural factors and contextual factors facilitate meaningful participation is referred to as an enabling environment. The design of an enabling environment is discussed in the next section.

3.1.3 The enabling environment

Jiménez et al. (2019) designed a framework for an enabling environment with elements that should ensure meaningful participation, which is based on the IAD framework of Ostrom and an extensive literature study on public participation in water governance. The framework, showed in Figure 3.2, consists of three components. The context represents components that cannot be influenced by the involved parties and that are structural. The institutional factors are not contextual as they can be adjusted by policy and decision makers, i.e. the facilitator. Both the context and the institutional factors relate to the contextual factors described in the previous section. Finally, the framework describes the procedural elements. These elements are rooted in deliberative democracy and represent the needed rules of the game in participation.

In addition, there are capacities and resources, which are about the extent to which an organization is able to facilitate participation and if it reserves resources to execute it. Lastly, the attitudes of the involved parties towards participation have a considerable influence on what comes out of the participation process (Jiménez et al., 2019; Bohner & Dickel, 2011). These attitudes “depend on the motivations, incentives, collective and social capital and past experiences of both participants and promoters of the process” (Jiménez et al., 2019, p. 14) and can partly be influenced by the facilitator. Together these components and their elements form the conditions that determine whether participation is meaningful.

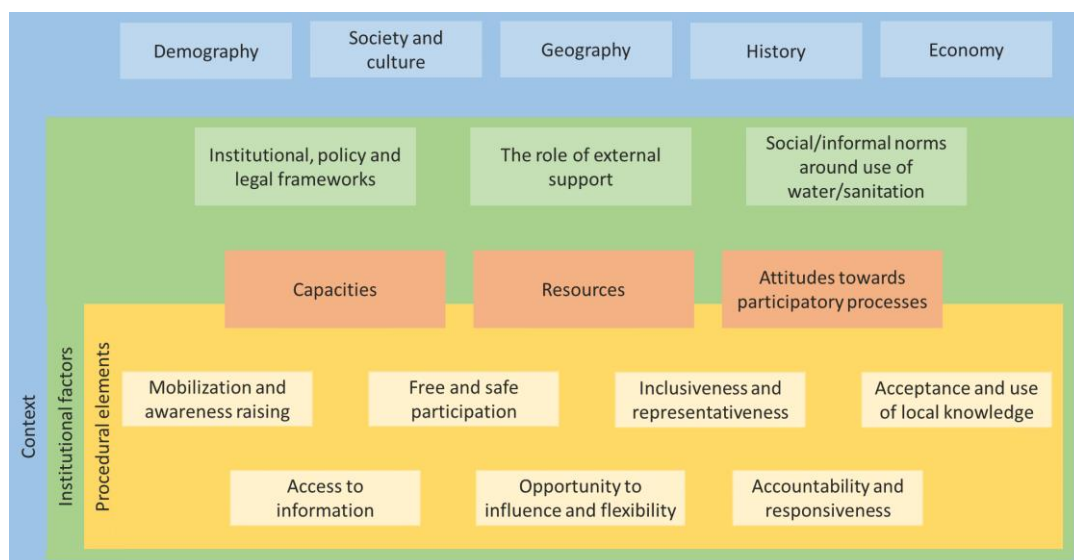


Figure 3.2 Framework for enabling environment for meaningful participation (Jiménez et al., 2017)

The framework in Figure 3.2 describes the enabling environment for public participation in general, however, online and webtool based participation is emerging. These forms of participation have similar and different characteristics that also have consequences for the environment needed. Since this research involves a webtool based form of participation – PVE –, this specific environment should be considered. Digital participation is used because of the availability of technology, but also because of potential benefits such as involving participants other than the usual suspects (Mouter et al., 2018). These and other advantages are highlighted in literature, however, there are some conditions to be met in order to make online participation meaningful (Evans-Cowley & Hollander, 2010; Falco & Kleinhaus, 2018a; Afzalan et al., 2017)

The conditions for using an online webtool that is enabling can be subdivided in conditions for the involved parties, the tool used and the institutional environment. First, the organization that implements the participation tool, the facilitator of the participation process. This organization should have the capacity to deal with the tool (Afzalan et al., 2017). Personnel should be properly trained,

there should be enough personnel to support the use of the tool and collaboration within and with other organizations should be aligned properly (Falco & Kleinhans, 2018a; Afzalan et al., 2017). Besides, the attitude of the organization and its personnel towards online participation has significant influence on the success of the process. In addition, the choice of the webtool should be instigated from the planning problem and the goals to be achieved by participation (Afzalan et al., 2017).

Also, the participants should have the capacity to participate online. Facilitators must consider the digital literacy of participants and whether they have access to internet or digital devices (Falco & Kleinhans, 2018a). Besides, the capacity of participants is determined by their past experiences with online participation, their attitudes towards online participation and the socio-economic characteristics of participants (Afzalan et al., 2017).

The choice for a tool also has an effect on the participation process. Whether a tool is able to facilitate a participation process depends on the quality of data management (e.g. data accuracy) (Falco & Kleinhans, 2018a). But also on the efficiency of the tool in facilitating the process and collecting knowledge, and if the tool is flexible in adjusting to the wanted process (e.g. if it is able to facilitate a dialogue when policy makers ask for this) (Afzalan et al., 2017). Finally, the institutional environment influences the possibility of a webtool in providing meaningful participation (Afzalan et al., 2017). Policy makers must consider the norms and regulation on, for example, privacy and data security (Falco & Kleinhans, 2018a).

The described elements and conditions for online participation show procedural and contextual factors such as in the enabling environment of Jiménez et al. (2019). However, in addition it describes the role and responsibilities of involved parties.

PVE and the enabling environment

The contextual elements of the enabling environment for PVE differ little from that of other participation methods. Some difference may occur in the attitudes of participants. In PVE respondents are asked to what extent the outcome of the PVE should have influence on the final decision. The outcomes often show a variance in whether the judgement of experts is more important than that of participants and vice versa. The benefits of PVE in improving the enabling environment of participation are found in representativeness (including other than usual suspects), free and safe participation (anonymous answers, no appointed time or place), mobilization and awareness raising (giving insight in trade-offs) and access to information (everyone gets the same information) (Mouter et al., 2019b).

Regarding the facilitator, it is important that PVE is embedded in the organization. It is a new participation tool, so facilitators need to be trained. Besides, as most facilitators have not heard of PVE yet, the attitude towards the method can be defensive. This was also experienced in performing this research and all conversations with people working on participation in Rotterdam such as the interviewees.

The biggest bottleneck is found at the side of the participants. PVE has the potential to increase the group of participants and to increase representativeness. However, citizens with no sufficient digital literacy or no access to digital devices are not represented in PVE. Furthermore, task complexity in PVE can be high. Especially when the number of policy options and/or the number of attributes is high (Dartée, 2018).

With regard to the tool itself, PVE distinguishes itself with its flexibility, as mentioned in section 2.5. The method allows for different types of policy options, from strategies to the more operational projects. Furthermore, PVE can be applied on different scale levels, from the local to the national level. However, the methods provides little flexibility in creating a dialogue between facilitator and participants. The next section will elaborate on deliberation.

3.1.4 Deliberative participation

Establishing an enabling environment is not enough to attain meaningful participation. Therefore, one needs to go back to where this environment is rooted in: deliberative participation (Jiménez et al., 2019). The enabling environment is a set of conditions that a participation process needs to fulfil, where the debate on deliberation is more about the character or nature of participation. But it also refers to how the public is approached. Whether as lay persons that need to learn something or as an equal party. In other words, it concerns the relationship and balance between facilitator and participant which is often unequal because of an information asymmetry. A lay person by far does not possess the information or knowledge of a facilitator – e.g. technicalities or legal information in the case of UCA –, unless this asymmetry is solved by providing the participant with that knowledge or information. Deliberation often is named as a way to accomplish that (Ianniello et al., 2019).

Deliberation is also an important theme in the scientific debate on participation (Ianniello et al., 2019; Few et al., 2007; Renn, 2006; Genus & Coles, 2005). This debate is mostly formed around two opposing philosophies on how a discourse occurs. Most researchers review this debate by discussing the opposing views of Habermas and Foucault. Habermas argues that rationality can be achieved when the following conditions are right. The process of discourse should be designed by all involved parties; the discourse should be based on rational information such as scientific knowledge; parties cannot act strategically and should be open about their values and preferences; and communication should be structured (Renn, 2006). However, this model is criticized by authors, such as Foucault, who argue that Habermas and other authors describe an idealistic situation and that strategic behaviour will always occur and cannot be prevented (Genus & Coles, 2005)

Renn (2006) applied deliberation to the dilemma between involving participants and the rational approach of policy makers that are hesitant to involve citizens as their knowledge may be incomplete or not based on scientific information. However, as Renn (2006) argues, only technical expertise is not enough when designing policies. A policy maker should always consider public values and preferences of citizens. These perceptions are not fully based on facts and scientific information, but also on “biases, anecdotal evidence and false assumptions”. According to Renn (2006) deliberation is the way to combine technical expertise with public values. Therefore, it is very important that everyone (i.e. all existing viewpoints) is involved in the discourse and that all participants also have influence on the outcomes of deliberation like for meaningful participation.

However, the disadvantages of deliberation should be considered. In assessing Constructive Technology Assessment – a method to test technology in real-world settings instead of in laboratory settings – Genus & Coles (2005) examine whether this method fulfils the criteria for a deliberative participation process. They conclude that the disadvantage of a deliberative approach should be considered because the ideal situation of Habermas will not be reached. Information is selected and presented strategically. Consequentially, interpretation and subjectivity become very important in a discourse. Language and the complexity of the subject play an important role in a dialogue, discussion or debate.

The equality between parties that is aimed for, will not be reached as long as the described factors concerning the provision of information by facilitators and the processing of information by participants are not considered. In other words, next to the contextual and procedural factors of the enabling environment there are substantial factors that need to be incorporated in participation. These substantial factors include the information provided by facilitators. This information should be provided in such a way that the participants are empowered with the knowledge and capacity to participate as an equal party.

PVE and deliberation

As mentioned before, a two-way flow of information occurs in PVE. However, as in many online participation tools a delay takes place in the dialogue between facilitator and participant. There is a lack of interpersonal communication and feedback on propositions and argumentation is delayed or absent. This can result in a confirmation bias (Wyss & Beste, 2017). The delay also exists in PVE. Participants are informed and state their preferences. However, it takes a while before a facilitator can communicate the consequences of the PVE-outcomes, due to the analysis of the data and the effects of the outcome on the policy making process. Therefore, the PVE environment does not completely facilitate a deliberative process.

PVE is a participatory tool, but also an evaluation tool. Evaluation and appraisal methods are traditionally focused on a technical-rational approach. However, critics advocated the need for deliberation in these methods. As factual information and value-driven information are not exclusive but reinforce each other and can enhance the quality of the outcomes (Owen et al., 2004). PVE provides for this combination of a technical-rational and a deliberative approach. In PVE the basis is factual information on which attributes are based on. Subsequently, trade-offs in values of participants are calculated on basis of the preferences of respondents.

3.1.5 Empowerment of participants

To overcome the inequality between parties, facilitator and participant should not only be regarded as equals, but participants should be empowered to be an equal party. The field of climate communication advocates that a deliberative process can help participants to learn about a topic. Climate communication is seen as key in empowering people to act or decide on climate change mitigation or adaptation. In a thorough literature review, Nerlich et al. (2010) found a shift in thinking about climate change communication. At first, climate communication was considered as a process in which the expert educated the layperson. In other words, one-way communication was the conventional way of thinking. However, nowadays climate communication is more about a dialogue between expert and laypeople and that this will facilitate a learning process. Important in this is that the expert or communicator should understand its public and deeply immerses themselves in the public. This enables them to fulfil another condition in climate communication: to make “the issue appealing, interesting and meaningful to the individual” (Nerlich et al., 2010, p. 100). Thereby, aiming to create understanding among laypeople, to recognize emotions and consider values, and to change behaviour effectively.

Five years later the literature review was updated and the upcoming social media were included (Pearce et al., 2015). Four key aspects of climate change communication were described by the authors. First, communication should take a deliberative form. It should take place as a dialogue. Second, uncertainty and complexity can be incorporated in the dialogue, as laypeople are very well able to grasp both topics. Where facilitators of communication often underestimate laypeople. Third, the perceptions of laypeople go beyond the environment. So, communication should not only focus on environmental issues but needs to show the bigger picture or should consider other factors that are important to the people to which the message is communicated. Finally, communication should be adapted to the public. There is not one type of people to which a message is communicated. The public is heterogeneous and everyone within that group needs a specific way of communication.

Hence, within the field of climate communication the need for dialogue in the learning process is stressed as well as the importance of knowing the public you are communicating with. However, although climate communication gives insight on how to present information to participants and that a learning process must be started, it does not give an answer to how participants are empowered to be an equal party in participation. Therefore, a process called capacity building needs to take place. This means that participants should be educated about the subject of a participation process but also about the process itself, in such a way that they can participate now but also in future participation processes (Blackstock et al., 2007). So, apart from empowering citizens to participate in specific problems or projects, capacity building should be directed to a process of engaging citizens over a much longer period.

Capacity building means that a learning process should be facilitated. Participants should be provided with the knowledge needed to participate. Knowledge is information that is processed by people through “comparing, combining, analysing and rearranging” information. And information can be defined as data that is “organized and contextualized” (Marvilhas & Martins, 2019, p. 354). However, most of our knowledge is tacit. Meaning that it is constructed within a person, that it is subjective and very difficult to communicate to others. To exchange this tacit knowledge, it should be made explicit. This can be done by using “metaphors, analogies, concepts, hypothesis and models” (Marvilhas & Martins, 2019, p.354).

From the previous section it follows that the information asymmetry between facilitator and participant is the cause for a flow of information between these two parties. In this section it became apparent that the flow of information from facilitator to participant, which is the focus of this research, often is inadequate as the facilitator does not tailor the information provision to the wishes and needs of participants. For example, the flow of information is often a ‘transaction’ of information instead of a part of a learning process which is needed for the empowerment of participants (Arnstein, 1969). Here, empowerment is defined as being enabled by the information provision of the facilitator to give substantiated input. This substantiated input comprises input by participants based on complete, correct and relevant information that enables participants to form motivated, informed and deliberated opinions and preferences. This kind of empowerment shares the objective/subjective dimension with the concept of influence and meaningfulness. Objectively, it can be determined whether the design of information provision empowers participants. However, the feeling of empowerment by participants can deviate from the objective assessment.

Information provision can connect useful and meaningful participation in case it empowers participants. The connection can be summarized as follows (Figure 3.3). The facilitator has a perception of what useful participation is. With this perception in mind, an enabling environment is designed. An important element of this enabling environment is the information provision by the facilitator that should empower participants to participate meaningfully. The scheme also shows that the facilitator should know its public before an effective information provision can be designed. To induce meaningful participation, one must know what information provision is needed to empower participants.

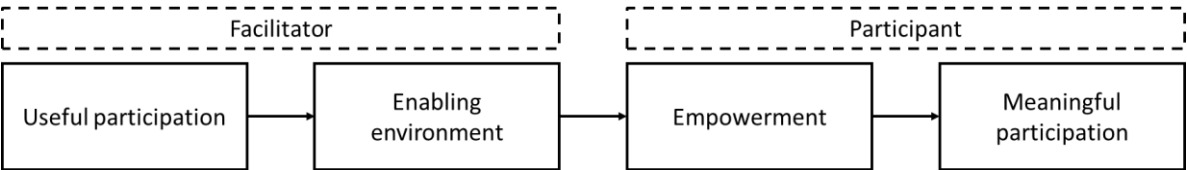


Figure 3.3 The influence of useful participation on the participants’ empowerment and the extent to which they can meaningfully participate

3.1.6 Information provision – the flow of information

How to provide information to fuel a dialogue or empower people to participate meaningfully?

When combining the insights of the literature review, the information provision can be divided in three steps (see Figure 3.4). Firstly, information is selected by the facilitator. Secondly, the facilitator transfers the information to the participant, the information is presented to the participant. This is part of the enabling environment (see Figure 3.3). Finally, the information is processed by the participant. The information is transformed into knowledge and the participant is empowered to some extent. Hereafter, the three steps are elaborated.

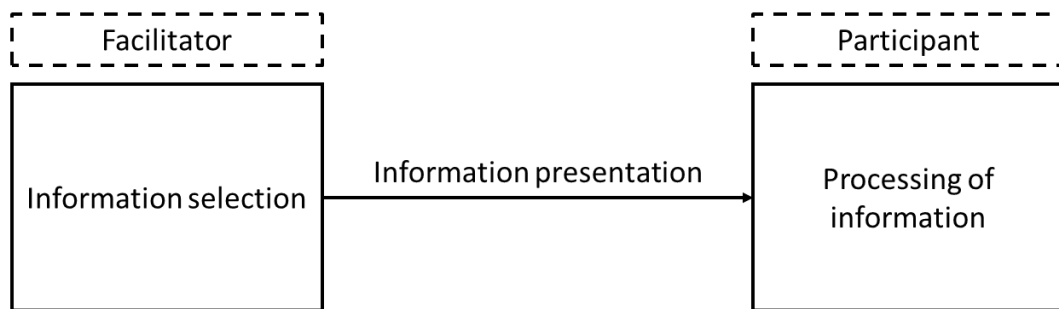


Figure 3.4 Information provision from facilitator to participant in participation (Based on Rowe & Frewer, 2005)

Processing of information

In selecting and presenting the information it is important to understand the public to which the information is directed to. Therefore, the processing of information by the public must be considered. The processing is influenced by the following characteristics of participants: capacities, skills, experiences, socio-economic characteristics and attitudes (Jiménez et al., 2019; Bohner & Dickel, 2011). Four factors have to be considered when selecting and presenting information: psychological distance, complexity, misinterpretation and heterogeneous public.

Firstly, the importance of considering psychological distance which is conceptualized in the Construal Level Theory of Bar-Anan et al. (2006). Psychological distance stands for the distance that people feel from a subject and has four dimensions in this theory: geographic, temporal, and social distance and uncertainty. In case a message or subject is perceived more distant, the processing of information is hindered more. Jones et al. (2017) performed an experiment in which they sent respondents different messages to test whether the theory also holds for climate messages. One group received a message that was distally framed, this message was psychologically distant. The other group got a proximally framed message. They found a strong relation for social distance and uncertainty, but a less strong relation for temporal and geographical distance. Psychological distance is, therefore, also a factor to consider in messages related to climate change.

That messages concerning climate adaptation are perceived distant is also found in other features of communicating about this subject. Sheppard et al (2011) argue that information on climate adaptation is often not obvious or not attainable for laypersons or local citizens, also because a lot of scientific evidence on climate change is only available on a global level. The impacts on the local level are often unknown or not specified. In addition, most of the information refers to technicalities and nature-related aspects of the subject, neglecting the more tangible context of socio-economic features (Sheppard et al., 2011, Nerlich et al., 2010). A way to deal with this distance is making messages localized (Jones et al., 2017; Sheppard et al., 2011)

Next to that, there is the complex nature of topics dealt with in participation (Sheppard et al., 2011), which may influence the comprehensibility for laypersons (Rowe & Frewer, 2005). This is also the starting point for this research as UCA turns out to be a complex subject. As mentioned in the introduction, the complexity of UCA comes from uncertainty – which makes it distant –, the dynamic

with other challenges and stakeholders – interrelatedness –, but also the governance structure of which participation is only an element. Complexity makes it a distant subject, but also harder to transfer the often tacit knowledge.

Thirdly, participants may interpret information differently than meant by the facilitator (Rowe & Frewer, 2005). As mentioned before, participants have their own perceptions which are not always based on factual information but emotions, biases, presumptions and information from other sources and facilitators (Renn, 2006; Rowe & Frewer, 2005; Paschen & Ison, 2007). The flow of information is not isolated and thus the information processing is influenced by external factors. In the case of UCA, the controversiality on taking measures to climate change can be such external information.

Finally, you need to deal with a heterogeneous public (Hine et al., 2016; Pearce et al., 2015; Jiménez et al., 2019). Participants vary on the following variables: capacities, skills, experiences, socio-economic characteristics and attitudes towards the subject and participation. The consequences of heterogeneity for information selection and presentation on climate change came forward in a study by Hine et al. (2016). The authors found three segments in their researched audience in Australia: a dismissive, an uncommitted and an alarmed audience. In order to achieve changes of behaviour in the audience, communications to the segments should be different. Sometimes the basic message can be the same, however, always “tailored and targeted to specific audience segments” (p. 8).

Information selection

The facilitators decide which information is selected to be used in the participation process. According to Jiménez et al. (2019) enabling people involves preventing strategically provided information. Therefore, information should be correct, complete, timely and relevant (Jiménez et al., 2019; Rowe & Frewer, 2005) and this information should be shared “equally with all stakeholders and at no cost” (Jiménez et al., 2019, p. 8).

Furthermore, the selection of information depends on the capacity and responsibilities of the facilitator. Especially their skills in providing the information and their responsibility of being unbiased, of accepting and using local knowledge, and of understanding their public (Rowe & Frewer, 2005; Jiménez et al., 2019). And as mentioned before, facilitators should consider the processing of information, values and preferences in the selection of information as participants need more than only facts and figures.

Information presentation

After the information is selected, the facilitator decides on how the information should be presented. The presentation of information is transferred to the participants. The heterogeneity of participants not only influences the information selection, but also the information presentation. In presenting the information, there are two factors that can be varied: the mode – the form of presentation – and the medium used for communication.

Different target groups need different forms or modes of communication (Pearce et al., 2015; Jiménez et al., 2019), as the mode of communication has great influence on the success of information exchange (Rowe & Frewer, 2005). For example, “information needs to be presented in different formats, in more than one language if necessary, avoiding technicalities, and employing adequate dissemination tools” (Jiménez et al., 2019, p. 8). A way to deal with this is progressive disclosure of information. This means that “information is supplied in layers of increasing specialization, depending on actors’ interest and necessary specialized information” (Guimaraes Pereira et al., 2003). Besides, it is also possible to differentiate the message to the audience by examining what values they have, what they think is important and adapt messages to that (Hine et al., 2016)

Furthermore, the mode of communication also has influence on other factors described above. For example, complexity can be tackled by working with designing scenarios and presenting them to

participants. More effectively is to design these scenarios in a deliberative process such as workshops (Sheppard et al., 2011). Scenarios are also a useful starting point for discussions (Tompkins et al., 2008). Another technique used are visualizations. These are used to provide information in a clear and less abstract way but can also help to reduce distance as visualisations appeal to emotions (Sheppard et al., 2011)

However, narratives are means that cover all factors. Using narratives means that the narrative is written by all parties. It is a way of communication that takes both deliberative participation and deliberative communication into account. Besides, it enables facilitators to deal with psychological distance, complexity and social learning. Moreover, it is different than storytelling which is mostly about policy makers writing a story in order to convince citizens that the policy designed is the right one (Paschen & Ison, 2007).

Finally, the medium of the information transfer is important (Rowe & Frewer, 2005). Examples of a medium are television, a letter, social media etc. The choice for a medium influences what group of people and the size of the group that is reached.

PVE and information provision

PVE provides information needed for enabling participants to make a choice. This is part of the consultation process. The selection of information in PVE is mostly done by policy makers and the selected information consists of a portfolio of policy options and the effects of these options. To this moment, one study is executed in which information selection in PVE was researched. The study analysed what the influence of framing in PVE was on decision-making by respondents. The results of the study show that when information is biased or framed, one cannot trust that the values of citizens coming from the PVE reflect the real values of citizens (De Geus, 2019). In other words, the selection of information in PVE can influence the reliability of the results.

The transfer of information takes place in the webtool. Participants receive an introductory text, attributes and in some cases visualisations such as maps or photos. Also, one study is performed on the presentation of information in PVE. Peeters (2020) analysed what the effect of a variation in the presentation of attributes – presenting quantitative values or short narrative sentences – was on the decision-making process by respondents. The content of the attributes was equal in both PVE's. From the research, it can be concluded that the variation in presentation had little effect, because participants included other consideration than the attributes in their decision and because the environment of the PVE is quite complex. Concluding, information presentation on the small scale of only the attributes in the PVE-experiment has little effect.

The processing of information does not differ from other methods of participation but can be influenced by the level of (digital) literacy of participants.

3.1.7 Conclusion

Participation is meaningful in the case that all existing and possible viewpoints are included in the process and the targeted population is represented in the process. However, the inclusion and representation should lead to influence on policy and decision making. This kind of influence is defined as an integral element of the policy-making process, which ensures that participation and its outcome are part of and have effect on the decision-making process (Few et al., 2007). In other words, the input of participants has noticeable and significant impact on the participation process and its outcomes. Influence can be objectively determined, but the perception of influence by participants is equally

important. Moreover, influence is related to the ratio between effort of participants and the impact of their input.

The conditions needed to safeguard meaningful participation are established in an enabling environment. This enabling environment is rooted in deliberative democracy, in which the equality of involved parties is the starting point. However, this equality will not emerge spontaneously. Empowerment of participants is needed as they lack knowledge on the subject in comparison to the professional facilitator. Overall meaningful participation can be achieved by providing an enabling environment in which participants are empowered to have significant influence outcomes of the policy making process.

An important part of the empowerment is the information provision to participants, which consist of a three-step flow of information. The facilitator selects and presents information and that information is processed by participants. The information selection and presentation follow from the facilitator’s perception of useful participation. Useful participation can be defined as achieving the prescribed objectives for a participation process. These objectives reflect one or more of the rationales behind participation and shape the way in which policy makers design the participation process, shaped by the enabling environment of which the information provision is an element. The process relationship between useful and meaningful participation is visualized in Figure 3.5.

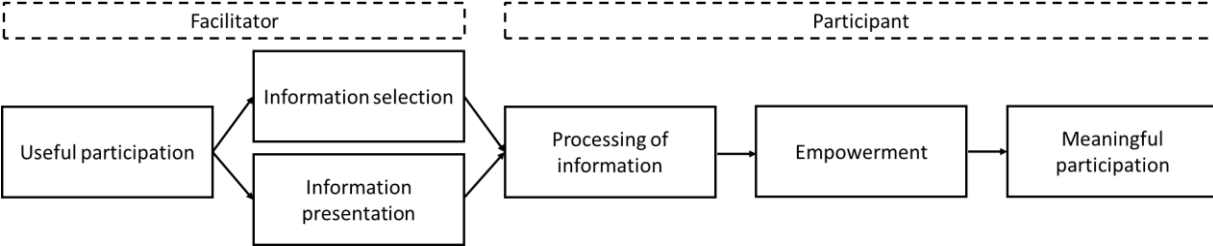


Figure 3.5 The role of the flow of information in connecting useful and meaningful participation

To what extent does PVE provide for a meaningful participation process? The PVE method takes a lot of barriers away. Especially, for people that do not feel the freedom to speak in public, that have no interest in going to group meetings or that do not have the time. PVE takes these barriers away and therefore is more enabling than other consulting processes. However, PVE still suffers from the typical disadvantages of online participation. For example, people that are digital illiterate or that do not have access to internet are not reached and therefore not represented in the process but also the delay in communication between parties.

Still, PVE has potential to facilitate a dialogue between policy makers and participants as there is a two-way flow of information. Citizens are informed on what policies are possible and they are consulted on what project or policy they prefer. Afterwards, the policy maker can give feedback on how the outcomes of PVE were included in the final decision. However, the main focus of PVE is still a consulting participation method.

How does PVE relate to useful participation? PVE can be used for all rationales and can be used to fulfil many goals behind participation. As mentioned before, it provides for a flow of information in both directions. Within an instrumental rationale, PVE can be used to inform citizens on what trade-offs the policy makers need to make. Within the substantive rationale, PVE is used to elicit local knowledge by asking for preferences of citizens. But it can also fulfil the normative rationale. PVE increases the influence on decision making if policy makers also include the outcomes of PVE in their decisions.

The two-way flow of information in participation, as organized in PVE, is presented in Figure 3.6. Table 3.1 summarizes the main results of the literature review per element of the figure. The figure shows

the two main parties involved in the flow of information. Firstly, the flow from facilitator to participant is discussed. The facilitator designs the PVE-survey, selects information – policy options, attributes and attribute levels – needed as input for the PVE and decides on the presentation in the PVE. Within the webtool, the information is transferred to the participants. The aim of this transfer is to inform participants about the policy options and to make them aware of their impacts and effects. However, the main goal is to ensure that participants process the information and thereby gain knowledge. With this knowledge they are empowered to make a ranking of the policy alternatives and participation will be more meaningful. Thereafter, the flow of information from participant to facilitator starts. In PVE, the preferences of participants are collected by the facilitator. This element of the process is about consulting the participants. The success of the flows of information and the participation process are influenced by the contextual factors of the enabling environment as described by Jiménez et al. (2019). The procedural elements are integrated in the different elements of the figure.

In this research the elements facilitator, participants and processing of information are perceived given. The facilitator and participants follow from the case study. In this the facilitator is the Municipality of Rotterdam, specifically the team responsible for Reyeroord. The participants are the citizens of Reyeroord. The processing of information is partly influenced by the information selection and presentation. Therefore, these two elements will be tested in this research. How these two elements will vary in the information manipulation experiment follows from the approaches that are formulated after the results of the literature study are compared to the results of the interview and document analysis.

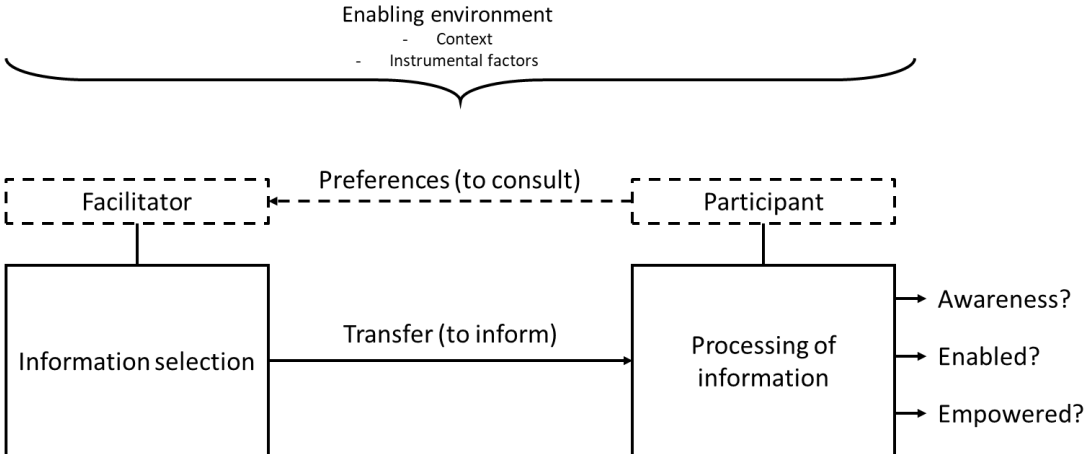


Figure 3.6 Conceptual framework of information provision in PVE (Based on: Rowe & Frewer et al., 2005; Marvilhas & Martin, 2019; Jiménez et al., 2019; Mouter et al., 2019)

Table 3.1 Summary of important characteristics of the elements showed in Figure X (Based on: Jiménez et al., 2019; Rowe & Frewer, 2005; Renn, 2006; Marvilhas & Martin, 2019; Jones et al., 2017; Sheppard et al., 2011; Hine et al., 2016; Pearce et al., 2105)

Parties	Flow of information
<p><u>Participants</u></p> <p>Have:</p> <ul style="list-style-type: none"> - Capacities - Skills - Experiences - Socio-economic characteristics - Attitudes <p>Aim for representativity and inclusivity</p> <p>Should have:</p> <ul style="list-style-type: none"> - Access to information - Opportunity to influence - No barriers to participate <p><u>Facilitator</u></p> <p>Should have capacities:</p> <ul style="list-style-type: none"> - Providing information - Process design - Organizational capacities - Trained personnel <p>Has responsibilities (accountability and responsiveness):</p> <ul style="list-style-type: none"> - Being unbiased - Acceptance and use of local knowledge - Understanding of his or her public 	<p><u>Processing of information</u></p> <p>Knowledge is acquired by processing information</p> <p>Processing information is influenced by:</p> <ul style="list-style-type: none"> - Psychological distance - Complexity of the subject - Interpretation of information by participant - Heterogeneity (following from diversity in characteristics) <p><u>Information presentation</u></p> <p>When transferring the message, two factors can be varied (considering heterogeneity of public):</p> <ul style="list-style-type: none"> - Medium (e.g. social media, television, webtool, letter, etc.) - Mode (e.g. short movie, song, story, scenarios, visualization, text) <p>When using an online webtool, it should be:</p> <ul style="list-style-type: none"> - Efficient - Flexible - High quality of data management <p><u>Information selection</u></p> <p>Principle of free and informed consent, in other words information must not be strategic but:</p> <ul style="list-style-type: none"> - Complete - Correct - Relevant - Timely <p>Values and preferences of citizens should be considered in the selection of information</p>

3.2 Results expert interviews and document analysis

The goal of the interviews and document analysis is to determine to what extent information provision within participation in practice differs from theory. The analyses give an overview of the views of policy makers and other facilitators of participation and their organizations on participation and particular on the flow of information or communication. Moreover, the analysis gives insight in how this information provision is influenced by perceptions of useful participation. Furthermore, the results of the analyses are the starting point of the evaluation by policy makers at the end of this research. From the literature review it followed that useful participation depends on the goals set by the facilitator. The analysis of interviews and documents clarifies what goals are achieved with participation in Rotterdam, especially on UCA.

This section discusses the results of both the expert interviews and the document analysis together. It starts with discussing participation as performed in Rotterdam by presenting the results of the two analyses described in Sections 2.3 and 2.4. Subsequently, the most remarkable similarities and differences with the literature review are discussed. This is done following the five elements of the framework presented in Section 3.1. The section closes with a reflection on the analysis.

3.2.1 Participation in Rotterdam

On the website, the municipality shows all its participation process in six categories: join (initiatives), think along, have a say in decision-making, social entrepreneurs, inspiration, and second opinion

(Gemeente Rotterdam, n.d.). However, to this moment, participation in Rotterdam is focused on initiatives from citizens themselves. These bottom-up projects of so-called “social entrepreneurs” and civic organisations are facilitated by the municipality in city labs and other arrangements. Nevertheless, interviewees stress that apart from facilitating initiatives, the dialogue with citizens is the basis of all forms of participation. Also for the more consulting forms of participation within the municipality. They emphasize that conversations are the most effective way of eliciting interests, needs, wishes etc. of participants. Other participation methods are complementary to this dialogue. In the document “*De Betrokken Stad*” – a policy letter by the responsible alderman on how participation should be organized in Rotterdam – six starting points for participation are described: “*participation requires tailor-made solutions, involved in your own environment, expectation management (clear expectations) and feedback, embrace initiative, improve current methods and make them more inclusive, and participation is an expertise.*”

All interviewees emphasized the broad range of objectives achieved with participation. The objectives most often mentioned are to inform, to activate, to bring knowledge, to obtain knowledge of citizens or to have co-production. Especially within the Weatherwise program the objective of participation is more than only informing the public. The main objective is that people will act themselves to make their home and environment more climate adaptive. The program facilitates this and aims for making people “extremely robust”.

The objectives of communication are similar to that of participation, since the municipality considers communication as an integral part of public participation. Interviewees state the following objectives: informing the public, creating awareness, find out what the preferences, needs, perspectives and wishes are and to offer them an action perspective (“*handelingsperspectief*”). As the *Weerwoord Urgentiedocument* states it: “*To involve citizens in an early stage [...] to formulate and inform about actual problems and developments together [...] inspire citizens and persuade them to take action [...] facilitate and show initiatives, results and chances*”.

Rotterdam recognizes the two-way flow of information, as follows from the objectives of communication: “*Substantive quality of plans is enhanced by eliciting knowledge from citizens from the start*”. Or as one interviewee puts it: “*The citizen is expert*” and information should be verified and validated by them. Another interviewee stresses the opportunity for validating information by giving the example of using data in climate adaptation. Several times it occurred that data on water nuisance suggested that water cumulated on several spots, but citizens never saw any water standing still on those spots. This example shows and interviewees emphasize that, especially in UCA, participation is also a two-way flow of knowledge. Participants possess essential information to design optimal policies and solutions. However, it is not only this substantive information. It is, for example, also about what risks citizens consider acceptable in relation to the costs. In other words, the two-way flow of information not only improves the substantive quality of decisions and policies but also fulfils the normative rationale.

Besides the described goals or objectives for participation, Rotterdam also has a practical reason for participation. This reason is the result of the context in which the municipality works. As one interviewee states: “*Of all real estate in Rotterdam approximately 40% is owned by public organisations and 60% is private land. In order to make a city climate adaptive, we really need these private parties. Those are citizens, social housing associations, neighbourhood organisations, etc.*” So, the municipality has to work together with private and semi-public parties because of the ownerships structure and the interrelatedness of UCA with other problems and transitions in the city. This collaboration seems to be motivated from an instrumental rationale; to prevent conflicts. However, as stated in the *Weerwoord Urgentiedocument*: “*the new relation between government, citizens, and*

companies will be one of equal parties". Thus, the municipality wants to achieve equality between parties and therefore aims for a fair and meaningful participation process.

Finally, a word needs to be said about the scale on which participation takes place. Three documents stress the need to work on both the big and the small scale. However, the results of the interviews indicate that, especially for participation in UCA, the focus is on the smaller scale: *"UCA is also about the smaller scale, flooded basements, courtyards without any green etc. You can tackle these problems as municipality, top-down. However, then you are restricted to the areas owned by the municipality"*. Therefore, a shift towards so-called *"wijkgestuurd werken"* (neighbourhood approach) can be identified in the municipality. A neighbourhood approach means that several physical and societal transitions are combined in one story for a neighbourhood and that initiatives of citizens are encouraged and facilitated. However, two interviewees stress that a large number of small initiatives can lead to a big change on the city scale.

3.2.2 Participants

In describing participants, interviewees discuss two factors also found in the literature review: heterogeneity and representation. Interviewees mention age, access to services, attitudes toward a subject, knowledge, skills and preferences of participants as variables influencing heterogeneity. However, one interviewee stressed that participants who actively participate – especially in the more bottom-up forms of participation – share some characteristics: *"There are many differences between participants, but they share that they are social. They master the Dutch language. They know the right places, people and networks. And they do not mind to speak in public"*.

In discussing representation, the interviewees distinguish two groups in Rotterdam. On the one hand, they identify pioneers or frontrunners that know how everything works with regard to budgets, regulation etc. On the other hand, they describe a group of participants on a smaller scale. For example, these people take care for neighbours running behind. Where one interviewee said that the municipality is really facilitating the first group in order to involve others, another interviewee stressed that this policy could create a divide between citizens. The first group is often financially compensated by the municipality, whereas the second group also participates and improves social cohesion but on a voluntary basis. The results of the document analysis show that the municipality is aware of the usual suspects that are overrepresented in participation (mostly in consultative participation, not in the bottom-up forms of participation described above) and that they want to broaden the group by implementing online participation.

The interviewees were also asked what motives participants have to participate, something which was not found in the literature review. Interviewees indicate that participants have very different reasons, for example, loneliness, irritation about the status quo, finding appreciation from others, and affinity with the subject. One interviewee states: *"So there are very different reasons to participate, but they all follow from a private or personal interest."* Another interviewee indicates: *"Some people only want to give their opinion while other citizens want to be involved in the design process from the start and give their opinion through the whole process"*.

Finally, the results of the interviews emphasize the importance of skills of participants, not only knowledge. Two interviewees explicitly talk about digital literacy of participants for example. Besides, these interviewees indicate the importance of access to services and equipment especially for online participation. One interviewee states: *"You must not underestimate how many people... Maybe they own a mobile phone, an old one, very slow [...] Rotterdam still is a city in which citizens have no access to digital devices"*.

3.2.3 Facilitator

The facilitator of the participation process, especially the facilitator of the information flow, can take two roles according to the interviewees. Firstly, the facilitator can be a policy maker or civil servant that starts an information flow between themselves and the participants to achieve their objective, e.g. collect information from the public or inform them about policies. Secondly, the facilitator can be a mediator, an independent facilitator between parties involved in the participation process. In the case of the first role, one interviewee emphasized that in order to connect to the public, the facilitator will be more successful if they are more representative with regard to the population. As one interviewee puts it: *“I think that representativity and inclusivity are really important [...] You should ensure that participants recognize themselves in the facilitator [...] Does a facilitator manage to connect with different social groups?”*.

Furthermore, interviewees emphasized that in the case of the municipality being the facilitator, easy access to the facilitator is key. As one interviewee commented: *“The fact that a facilitator is easily approachable and that the contact person is, that the municipality is not a kind of wall”*. However, this is not always an easy task for a municipality or other governmental organization. As stressed in the document *De Betrokken Stad*: *“There is not always room for participation. The municipality has to play various roles, which can take place on the same moment and need to be adopted alongside. The government has its traditional role in guarding the general interest, the enforcement of regulation and granting permits. These roles can be contrary to giving citizens a say in decision-making.”*

Interestingly, the municipality often chooses to separate the facilitator of the participation process and the facilitator responsible for the communication in the case of UCA. For example, Opzoomer Mee will communicate the story about UCA on a very small scale level in the whole city: *“We have these roadshows in which we inform citizens about UCA, the municipality gratefully makes use of this”*. Whereas in the neighbourhood Reyeroord, Stichting Tussentuin was responsible for the dialogue with citizens. The municipality explicitly asked them to arrange the participation process for the neighbourhood.

In addition to the literature review, the interviewees discussed two capacities of the facilitator: facilitating a dialogue and flexibility. Facilitators should be capable in starting a dialogue and keep it going. Besides, as one interviewee puts it: *“you should be, I think that when you want to do participation, you must be flexible”*. The document *De Betrokken Stad* identifies an additional responsibility for facilitators: *“Thus, this asks for excellent skills in expectation management and clear feedback on what consequences the municipality gives to the input of citizens”*.

Interestingly, the interviewees related to the municipality discuss the need for an organizational shift now that the prominence of participation increases and the approach of policy making becomes more integrated. Rotterdam acquires the needed knowledge for the change in their way of working by hiring external parties. One interviewee said: *“The municipality wants to stimulate self-management in neighbourhoods [...] This means that you will have to let citizens have a say and have input [...] That is really different from how the municipality is used to work [...] So I think that the municipality is trying to involve external parties with experience in this way of working”*. Similarly, the municipality shares its knowledge with external parties using a new approach, as stated by one interviewee: *“Together with the four big social housing associations, that is quite innovative, is that our colleagues are working one day a week at these associations.”*

3.2.4 Processing of information

The processing of information results in the gaining of knowledge by participants. The results of the interviews indicate that the level of knowledge of participants influences the effectiveness of the processing of information and that the selection and presentation of information must be adapted to

that level of knowledge. Nevertheless, interviewees have different opinions on the level of knowledge of participants. The interviewees that are not related to the municipality stress that a significant group of citizens has no prior knowledge on UCA. Besides, one interviewee states that using scenarios and participatory budgeting *“are a bridge too far”*. Again, heterogeneity exists in the knowledge and capacities of participants. However, interviewees related to the municipality emphasize that an underestimation of the willingness of citizens to contribute to the improvement of the urban climate and sustainability should be prevented. As one interviewee puts it: *“I experienced, for example, that a lot of cultures have a huge admiration for nature and thrift and to avoid waste”*. However, this asks for an involvement with the affected public, which already came forward in the literature review in discussing heterogeneity. The same interviewee stressed that discussions or debates about sustainability always attract people that vote for Green parties etc.

Interviewees also discussed how information should be provided to citizens with no prior knowledge of UCA. They agree that if that is the case, more knowledge is needed to enable citizens to state their preferences. Most interviewees emphasize that information provided must be really specific (*‘concreet’*) and tangible (*‘tastbaar’*). Interviewees give several examples, such as: *“In the Afrikanerwijk we want to work with so-called climate coaches. These coaches are citizens that will be trained to inform other citizens.”* Or *“The problems with water result in chances to redesign a square, for example. We can place benches, or a small pavilion where you can drink a cup of coffee [...] In such a way, you bring knowledge about water to people who did not have any knowledge. By using a ‘side road’.”* Eventually, providing citizens with information or knowledge can make them motivated to join, but there are always people who stay sceptic.

3.2.5 Information selection

The literature review showed that the information selected should be complete, correct, relevant and timely. Interviewees identified five additional conditions for the content and framing of the message that partly correspond with the ones found in the literature. Firstly, the message should be open and transparent, i.e. conditions, requirements and limitations such as the available budget, physical characteristics, objectives and timelines should be included in the information selection. These restrictions are always present, but if they are not communicated properly it will cause dissatisfaction among participants. As one interviewee puts it: *“You should only start participation if you are sure that a budget is available. Otherwise you are dangling a carrot, and they will think along with you. Or you should be open about having no budget”*. Another interviewee said: *“There are restrictions [...] but it is important that you start a dialogue about why some things are not possible. That is something else than just state that something is not possible. You can always explain why.”*

Secondly, the message should be attainable (*‘laagdremelig’*) in both selection and presentation. For the selection of information, this implicates that the message should connect with the values of citizens and should be easy. For example, the approach of Opzoomer Mee is to stay away from the broader discussion in climate change as it possibly distracts citizens from the problems on a smaller scale and from the positive aspects of participation for citizens themselves. As one interviewee said: *“You want to create awareness amongst citizens that also with a low income you can participate [...] From the moment you go to that discussion [on the (distribution of) costs of big climate change mitigation measures, red.] you’re losing the participants”*. The approach of the Municipality of Rotterdam is to start broad conversations – i.e. not steered towards a certain topic – in which climate adaptation is not the main subject. They start with talking about liveability of a neighbourhood and what improvements citizens think are necessary. *“So, only later you start talking about climate. This is intentionally done, because if you start the conversation with a limited message, a very specific problem, you will miss chances. Imagine that citizens state that they want more play gardens for their children or more green in the neighbourhood.”* The interviewee adds that this enables to obtain

information that was hidden. However, it could also indicate a way of dealing with the controversiality of the subject of climate change by shifting the dialogue towards another topic.

Thirdly, the message should give a clear long-term vision. The facilitator should clarify what their long-term goals for an area or what they want to achieve with participation: *“If you do not have a spot on the horizon, it does not work. No, in my perception, if you only say, we just start a participation process [...] In that case citizens will not come anymore [...] They want to think along but need a kind of clarity that it is realized in let’s say two years”*.

Fourthly, one interviewee stressed that the facilitator should be aware that the message can be a heavy message and stated: *“It definitely is a stirring conversation [...] You are talking about situations in which people experience water stress or about higher mortality rates because of heat or health problems caused by draught.”*

Finally, interviewees emphasize that UCA is linked to other transitions, problems and chances. Therefore, this should also be included in the message: *“The sewage system in Reyerwaard will be replaced. This will be communicated to citizens. And we can connect that to other stories. [...] So here we have an opportunity to redesign the neighbourhood, together. In a way that liveability will increase”*. The documents also stress that this interrelatedness should be included in the message: *“We share knowledge, provide information, and facilitate space. We give special attention to meekoppelkansen [chances following from other problems or transitions, red.] (similar to the approach of Water Sensitive Rotterdam)”*.

3.2.6 Information presentation

As in the literature review, the difference in mode and medium is highlighted when the transfer of information is discussed in the interviews. From the interviews it follows that four aspects of information presentation are considered. First, creativity plays a big role in presenting a message. *“For example, we work a lot with short movies, interviews in which people tell their story”*. Or *“So something like UCA, if you say one tile out and green in, plant façade gardens [...] Than you are making something big tangible. So, we also make short movies with tips and tricks”*. Secondly, two interviewees stress that in the message simplicity is key. *“To inform people we made a simple, funny movie [...] To reach as many people as possible”* Or *“A few years ago we made a very simple folder about the increase of rain intensity. In a very simple style (‘Jip en Janneke stijl’)”*. Thirdly, the presentation of information should be approachable and attainable (‘laagdrempelig’). Interviewees name different methods to accomplish this: *“It is so much stronger that, instead of a professional, citizens tell the story themselves. It is more trustworthy. More sincere.”* Or *“We organize workshops. I bring a blank sheet and 200 photographs with me. I let participants choose the photo’s they find appealing. Then we turn to the sheet, maybe with a map on it, and then ask what is going wrong?”*. Finally, the message should be appealing by making it visualized and fun. As one interviewee puts it: *“It is quite a complex story to tell. We do not tell it from a climate change or climate adaptation perspective. We talk about ‘wet feet’ or talk about an increase of water in the streets. We try to connect to the values of citizens.”*. But it is also stressed in the document *Reysgids*: *“By showing a small part of the street, we want to investigate if the interest of citizens can be attracted earlier. At hotspots we show new techniques, reuse of materials and innovative street furniture.”*

In discussing the medium, interviewees emphasize the importance of the conversation with participants. One interviewee is most straightforward: *“Conversations, definitely conversations [...] Some groups you can only approach by starting a conversation, by finding their network and sit around the table and ask questions”*. Besides, interviewees stress the scale level on which communication takes place: *“In our communication approach we use local Facebook groups to supply information. So, communication is done on small local scale to involve as many people as possible.”* In the *Weerwoord Urgentie* document the following mediums are emphasized: *“A communication team will provide good*

communication outwards and provide an appealing offer of joining climate adaptation solutions. Think about being visible at festivals, markets, neighbourhood meetings and other events in the city [...] We already started with an advertising campaign in two pilot neighbourhoods [...] We want to establish an online- and offline platform on which citizens can exchange experiences, inspire each other and can learn from each other.” And as already mentioned in discussing the facilitator, the organization or person that communicates can be different from the facilitator of the participation process.

As mentioned before, diversity in a group of citizens or participants exists due to heterogeneity, representation and motives. Therefore, the participation process and the flow of information need to be tailor-made solutions. This is also what the documents prescribe: a differentiated approach. Citizens with different characteristics should be addressed differently, which is a similar finding as in the literature review. From the interviews an additional reason for differentiation comes forward. Differentiation is also needed to involve people who do not want to go to public meetings or similar participation modes. For example, because people don't like to speak in public or because they do not master the language. Hence, differentiation is also needed in the medium of communication and participation.

3.2.7 Conclusion

The results of this interview and document analysis show the following principles for participation in Rotterdam, especially in UCA. Firstly, the municipality recognizes the interrelatedness that is linked with UCA and considers participation as a way to tackle this interrelatedness. Secondly, participation is organized on different scales, but is focused on the neighbourhood level with the so-called *wijkgestuurd werken* (neighbourhood approach). Thirdly, participation is focused on the initiatives by citizens. The municipality facilitates and encourages these initiatives. Finally, participation should be approachable and attainable. Citizens must encounter as little as possible barriers for participation, which also means that tailor-made solutions and methods for participation are used. The objectives aimed for with participation, especially in the Weatherwise program, are to inform citizens and to encourage citizens to take action themselves. Thereby, the municipality wants to increase the involvement of citizens with their own environment. In addition, Rotterdam acknowledges the importance of input by citizens. Participation is therefore a means to collect wishes, needs and preferences of citizens.

The following principles form the basis for communication in participation in Rotterdam. Information should be specific and tangible. Thereby, enhancing the attainability and approachability of communication. In addition, the heterogeneity of citizens forces the municipality to differentiate communication. Finally, all interviewees emphasize that the message should be open and broad. UCA should not be the main subject, otherwise chances that are not directly related to UCA will be missed. One interviewee even stressed that the broader discussion on climate change should be ignored on the smaller scale such as participation on street level.

3.2.8 Insights from the exploratory research

In comparison to the literature study, the following similarities stand out. The interviewees emphasize the impact of heterogeneity among participants on participation. In addition, they indicate the variety in motives to join participation. Interviewees also emphasize the professionalism of the facilitator. The facilitator should dispose the right capacities and should be aware of what role they play in participation. Finally, interviewees stress the importance of both the mode and the medium in the information transfer. Besides, the results of the analysis show a variety of possible modes and mediums.

The interview and document analyses also differ from the literature review. These differences or additions are showed in Table 3.2 in italics. First, there is a difference with participation as provided in PVE and the objective of participation in Rotterdam. The emphasis is on activating citizens, whereas the focus of PVE is on consultation of citizens. The mobilization of local knowledge in the Rotterdam context is focused on the wishes and needs of citizens and performed on a small scale in conversations and “risk dialogues”. The evaluation of policy options is not yet an objective in participation. Besides, interviewees indicate that an organizational shift is needed in working on participation in general and UCA because of its interrelatedness. Whereas, the literature review emphasized the need for organizational shift when online participation is introduced.

In addition, the documents and interviews indicate a clear view on how information should be selected and presented. They identify five conditions for information selection and four aspects of the information transfer (see Table 3.2). And where they support the importance of psychological distance and complexity in the processing of information, interviewees have their own approach to tackle these two elements. In their view it is important that the message should be specific and tangible (*‘concreet en tastbaar’*), the message should be attainable (*‘laagdrempelig’*), the message should relate to the experiences of citizens, and as mentioned earlier, interviewees stress that the message should be broad. Thereby, they mean the subject of the message should not per definition be UCA.

The findings of the literature review and the interview and document analyses suggest that there are three approaches in providing information in such a way that the information is processed optimally and that participants are empowered to state their preferences for policy options. The approaches consider both the information selection as the information selection.

1. *In order to reduce complexity and psychological distance, the message should stay away from the broader debate on climate change and the technical aspects of UCA.*

The analyses show that the complexity and psychological distance of a message can be decreased by making the message more relatable to citizens. Both the literature and the interviews indicate that the information provided should not focus on UCA alone. It should include the socio-economic aspects affected by it. The interviewees emphasize that this will lead to more enriched input from participants. However, they also think it is better to stay away from the broader debate on climate change. The interviewees argue that involving this often national or international debate on climate change will narrow the discussion to the distribution of costs in society. While it distracts from positive contributions from citizens that do not cost money or interventions that have benefits for citizens on a local scale. Besides, where the literature recommends the use of scenarios in reducing complexity, interviewees state that this would increase complexity and reduces the attainability of the message. The interviewees state that scenarios and technicalities are a bridge too far for most participants. This approach follows the empirical insights of the interviews.

2. *The message should be specific and tangible – by visualization and localization of the message – to support the processing of information.*

From the literature and the interviews, it follows that a message can best be related to the experiences of citizens. An approachable and attainable message will be processed best by participants. This can be achieved by making the message visualized and localized.

3. *Finally, complexity and misinterpretation can be reduced by making the information provision flexible.*

The analyses show that the heterogeneity of the public in, for example, capacities, experiences, and knowledge are of great influence on the need for specific information. Differentiation of information answers to this heterogeneity in the demand for information

and enables to provide participants with the information they need to make a decision. Ways to provide for differentiation are the progressive disclosure of information or deliberation.

Table 3.2 Extension of the summary presented in Table 3.1. In this table the results of the interview and document analyses are added. The parts in italics show divergent or additional results from the interview and document analyses

Parties	Flow of information
<p><u>Participants</u> Have:</p> <ul style="list-style-type: none"> - Capacities - Skills - Experiences - Socio-economic characteristics - Attitudes - <i>Motives</i> - <i>Skills</i> - <i>Access to services and equipment</i> <p>Aim for representativity and inclusivity Should have:</p> <ul style="list-style-type: none"> - Access to information - Opportunity to influence - No barriers to participate <p><u>Facilitator</u> Should have capacities:</p> <ul style="list-style-type: none"> - Providing information - Process design - Organizational capacities - Trained personnel - <i>Facilitate a dialogue</i> - <i>Being flexible</i> <p>Has responsibilities (accountability and responsiveness):</p> <ul style="list-style-type: none"> - Being unbiased - Acceptance and use of local knowledge - Understanding of his or her public - <i>Expectation management and feedback</i> <p><i>Can fulfil different roles</i></p> <ul style="list-style-type: none"> - <i>Representative of municipality or independent mediator</i> <p><i>Participation asks for organizational shift within municipality</i></p>	<p><u>Processing of information</u> Knowledge is acquired by processing information Processing information is influenced by:</p> <ul style="list-style-type: none"> - Psychological distance - Complexity of the subject - Interpretation of information by participant - Heterogeneity (following from diversity in characteristics) - <i>Knowledge level of participant</i> <p><i>Information should be specific and tangible, especially if knowledge level is low</i> <i>Gaining knowledge can change attitudes and perceptions of participants</i></p> <p><u>Information presentation</u> When transferring the message, two factors can be varied (considering heterogeneity of public):</p> <ul style="list-style-type: none"> - Medium (e.g. social media, television, webtool, letter, etc.) - Mode (e.g. short movie, song, story, scenarios, visualization, text) <p><i>4 aspects to consider:</i></p> <ul style="list-style-type: none"> - <i>Creativity</i> - <i>Appealing to participants</i> - <i>Simplicity</i> - <i>Approachable</i> <p>When using an online webtool, it should be:</p> <ul style="list-style-type: none"> - Efficient - Flexible - High quality of data management <p><u>Information selection</u> Principle of free and informed consent, in other words information must not be strategic but:</p> <ul style="list-style-type: none"> - Complete - Correct - Relevant - Timely <p>Values and preferences of citizens should be considered in the selection of information <i>5 conditions for the message from the facilitator:</i></p> <ul style="list-style-type: none"> - <i>Specific and tangible (attainable)</i> - <i>Open and transparent</i> - <i>Broad</i> - <i>Clear long-term vision</i> - <i>Acknowledge the heaviness of message</i>

3.3 Research design

In this section the research design of the information manipulation experiment and the questionnaire are discussed. In Section 3.3.1, the design of the PVE-survey is discussed. Thereafter, the manipulation of information is introduced. Subsequently, Section 3.3.2 discusses the design of the questionnaire. Section 3.3.3 includes the results of the tests of both the PVE-survey and the questionnaire. The research design closes with a section on the distribution to potential respondents.

3.3.1 Information manipulation experiment

In setting up the experiment, two steps have to be executed. First, information on the case study is collected and the policy options for the PVE-survey are designed. Secondly, the research design for the manipulation experiment is formulated.

Content of the experiment

In Reyeroord, the case study of this research, the sewage system will be replaced by a separated sewage system in 2021. Surface runoff will no longer be combined with wastewater. However, the extra surface runoff that needs to be stored cannot be collected in current surface waters. Therefore, a new water storage needs to be realized. The Municipality of Rotterdam has already done some exploratory research on the location and the water will partly be collected in a new water storage in the so-called green area of the neighbourhood (see Figure 3.7) (Gemeente Rotterdam, 2019b; Gemeente Rotterdam, 2020a).

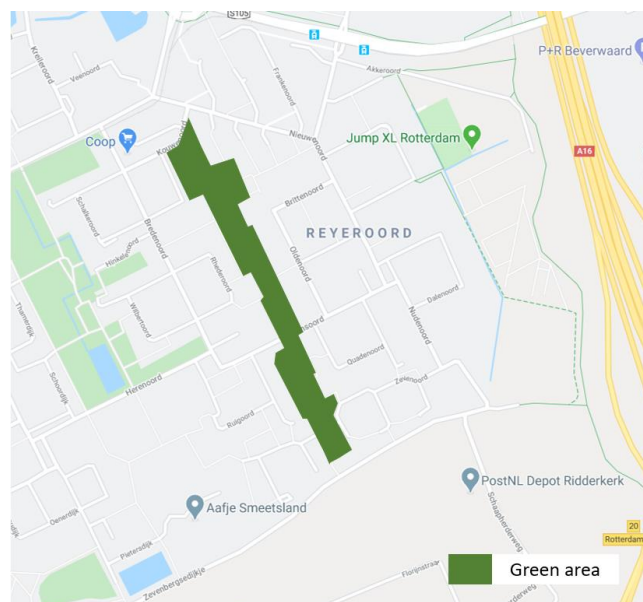


Figure 3.7 Green area where the water storage will be realized

When realizing a water storage in the area, the municipality wants to redevelop the green area of about 37,000 m². At the moment, the area contributes to the green character of the neighbourhood. However, the area is not appealing for citizens and therefore hardly used. The municipality has already decided on the realization of the water storage and prefers a water storage with natural forms instead of a canal. However, the design of the green area is still open and the input of citizens on the design is wanted.

The realization of the water storage and the redevelopment of the green area were chosen as case for the PVE since it was the project in Reyeroord most related to UCA. Other projects concerned the

energy transition or the transition towards a circular economy. Besides, the Reyeroord+ team already started a participation process for this project.

In collaboration with the Reyeroord+ team, 6 'design variables' for the policy options in the PVE were determined. As input for these design variables two studies of the municipality (Gemeente Rotterdam, 2019b; Gemeente Rotterdam 2020a), a documentation of wishes of citizens listed in an earlier participation process and feedback sessions with the Reyeroord+ team were used. The six design variables are:

1. Capacity of the water storage

Water storage is needed to collect water falling on the streets and in a later stadium on the roofs, as it will no longer be collected in the sewage system. Most of the runoff water can be collected in existing surface water, however, a volume of 2000 m³ extra water storage is needed. The needed capacity is not a fixed number yet, the final capacity can be lower or higher. In this PVE a capacity of 2000 m³ is used as minimum. One policy option includes a higher capacity. The storage realized in the green area contributes to the storage goals for the bigger area of IJsselmonde (Gemeente Rotterdam, 2020a).

2. Design of the water storage

The municipality has explored two alternatives for a design of the water storage. Firstly, the storage can be shaped as a canal, similar to another water storage at the west side of the neighbourhood. The second alternative encompasses several "wet and dry zones". In other words, several puddles and pools are realized with natural banks (Gemeente Rotterdam, 2020a). The second alternative provides for more design freedom for the green area and is better for biodiversity. The municipality prefers the second alternative as it is more appealing for citizens.

3. Central or decentral water storage

After the analyses of the municipality, the green area was appointed as a possible location for the water storage. However, the neighbourhood is characterized by a high number of courtyards owned by the municipality. The courtyards also suffer from water nuisance and could be a part of the water storage plan. When realizing small decentral water storages in the courtyards – next to a central storage in the green area – this raises the possibility to redevelop the courtyards.

4. Design of the green area

When realizing a water storage in the green area, the municipality wants to redevelop the whole green area. The area can be redeveloped in a basic park or a park that offers possibilities for recreation (e.g. by adding playgrounds or other features that enables people to recreate). In addition, the biodiversity in the area can be enhanced by including measures to increase biodiversity in the design of the area. This is the design variable that is most open for input from citizens.

5. Levelling up of the green area

Since the realization of the neighbourhood in the sixties, a lot of subsidence has occurred. When the sewage system is replaced, streets and other public property is levelled up. Levelling up is also a possibility for the green area – i.e. a levelling up of about 30 cm is needed. This would result in more water nuisance for surrounding gardens in case these gardens are not levelled up. The municipality is looking for alternatives to tackle the consequences of subsidence instead of levelling up. However, these alternatives were unclear at the moment of constructing the PVE-survey. Therefore, only levelling up was included in the survey.

6. Compensation for levelling up private property

If the green area is levelled up, there is the possibility to level up the gardens surrounding the green area. The municipality could provide financial compensation for the costs made by the citizens.

The policy options are constructed by varying the alternatives of the six design variables. Five policy options were designed, all representing a value: conservative, liberal, family, nature and progressive/sustainability (see Table 3.3). On basis of the values, a selection of alternatives within the design variables was made for each option. The option from a conservative value represents a simple redevelopment of the green area. All necessary things are done in the cheapest way. So, a water storage in the form of a canal is realized and the green area is upgraded to a basic park. From a liberal value the green area is redeveloped in such a way that as much as possible citizens can make use of the zone by creating a footpath, playgrounds etc. The option related to the family value incorporates the courtyards in the design and gives the opportunity for redevelopment close to the homes of all citizens in Reyeroord. The rationale behind this option is a close relationship of citizens with the direct surrounding. The option reflecting the nature value focusses on biodiversity, which is enhanced in the whole neighbourhood. Finally, the option designed from a progressive value represents a redevelopment that considers more uncertainty. For example, by creating more water storage capacity. In the case that water nuisance turns out to be more in future than calculated at the moment, this option provides for enough storage. This option also focusses on biodiversity, however, there is a difference in compensation of the levelling up of gardens compared to option four as tackling subsidence corresponds with the future-proof rationale behind this policy option.

Table 3.3 Levels of the five policy options on the design variables

Design variable	Conservative	Liberal	Family	Nature	Progressive
Capacity	2000	2000	2000	2000	3000
Design water storage	Canal	Wet and dry zones	Wet and dry zones	Wet and dry zones	Wet and dry zones
(De)central storage	Central	Central	Central and decentral	Central	Central
Design green area	Basic park	Recreation park with two big playgrounds	Basic park, but possibility to upgrade courtyards	Recreation park, with focus on biodiversity + enhance biodiversity in the rest of the neighbourhood	Recreation park, with focus on biodiversity
Levelling up	No	Yes	Yes	Yes	Yes
Compensation private property	No	No	Yes	No	Yes

The characteristics of the policy options are also reflected in the attributes, shown in Table 3.4. First the costs of the options, which represent the amount of work done. Most costs and differentiation between the costs of options are in the realization of the park – realizing a recreation park is about 1 million euros more expensive than a basic park – and in the costs for levelling up the green area. For the calculation of the costs see Appendix E.

The other attributes were mostly used to represent the six design variables. The increase of biodiversity is related to the design of the water storage - natural shores have a bigger effect - and the design of the green area. The design of the green area also comes back in the possibilities for recreation

and possibilities for children to play. Levelling up of the green area results in less water nuisance on public property and levelling up of private property (more likely in case of compensation) results in less water nuisance on private property. There is no water nuisance on private property if the green area is not levelled up.

Table 3.4 Attribute levels of the five policy options

Attribute	Conservative	Liberal	Family	Nature	Progressive
<i>Costs</i>	4.000.000	5.200.000	6.600.000	5.000.000	5.500.000
<i>Capacity of water storage [m3]</i>	2000	2000	2000	2000	3000
<i>Change in possibilities for recreation</i>	No improvement	Big improvement	Big improvement	Small improvement	Small improvement
<i>Change in possibilities for children to play</i>	No improvement	Big improvement	Big improvement	Small improvement	Small improvement
<i>Increase in variation of biodiversity</i>	Equal	Increase	Increase	Large increase	Large increase
<i>Water nuisance public property Reyerwaard</i>	Decrease	Decrease	Decrease	Decrease	Large decrease
<i>Water nuisance private property (e.g. gardens)</i>	Equal	Increase	Equal	Increase	Equal

Limitations of the case study influencing the information manipulation experiment

The case study has got four difficulties that can affect the accomplishment of the research objectives. Firstly, the focus of this research is on providing complex information, especially on UCA, to participants in consultative participatory processes such as PVE. As mentioned in the Section 2.2, Rotterdam is a frontrunner in UCA with Reyerwaard as one of the test cases. However, as mentioned in this section, in case of the water storage in Reyerwaard the municipality has made their decisions on UCA measures in the neighbourhood. It will be a water storage in the green area with a design based on natural pools. No input can be given on what citizens think about the realization of the water storage. The choice presented to citizens is mostly about improvements for the living environment that can be done in combination with the realization of the water storage. The municipality mostly wants to collect the wishes for the living environment of the citizens. Therefore, the complexity following from UCA initially missed in the proposed consultation by the municipality. This difficulty was solved by including different designs for the water storage and the possibility for levelling up in the policy options. In addition, the attributes are both about UCA and improving the living environment.

Secondly, relatively little information was available about the case, since the water storage project is in a very early stage. The plans for the green area are not clearly defined yet and the budgets are not determined. The costs were rough estimations and the exact effects of levelling up were unknown. With the available information the policy options have been designed, but the little information available reduced the room to manipulate the information. Because no budgets were known, it was decided to use a PVE based on the allocation of points instead of the allocation of a budget. Participants were asked to state their preferences on the policy options by allocating the 100 points available to the options. The allocation of points provides for three insights: the ranking of options by participants, which option they select and do not select, and what weight they assign to the selected policy options.

Thirdly, the policy options presented are already quite localized. The interventions take place in the green area and courtyards. These places only have a function for and are known by the people living about 150 meters from the area. Therefore, the case study leaves little room to differentiate between localized and more high-over information. The possibility to manipulate the information by making it more localized was therefore not used in the treatments.

Finally, there was a possibility that only a low number of citizens would participate. The citizens of Reyerwaard have been asked frequently in the short past to participate on a variety of subjects. Besides, there was the lockdown to prevent the spread of Corona that complicated the recruitment of respondents. See Section 3.3.4 for how this problem was tackled.

Two treatments

As discussed in Section 2.5, the information in the PVE-survey will be varied in an information manipulation experiment. In this experiment, the information provision is varied in two treatments which are assigned to two different respondent groups. Before these two treatments are discussed, the object of manipulation is elaborated.

Isolation of effects

In the information manipulation experiment it is important that the variation in information between the treatments is isolated and that no other factors affect the results of the experiment (De Vries et al., 2014). In PVE information is provided to participants in three forms: an introduction text, texts accompanying the policy options and the attributes. These three forms can be divided in two categories. The introduction and policy option texts provide context and the attributes represent the trade-offs to be made in making a choice or selection of policy options. In this research the contextual information is varied. The effects of the presentation of attributes have been tested in earlier research (e.g. Peeters, 2020). In the end, this research identifies how information provision in participation affects the (feeling of) empowerment to give a substantiated advice among participants, especially in the case of a PVE on UCA. The research is therefore directed to the assessing the quality of the contextual information to what extent it supports participants in making a choice between policy options.

Besides the contextual information, all other elements in the PVE are kept constant to ensure the isolation of the effect. Every participant makes a selection from the same five policy option described above on basis of the same attributes. These attributes also have the same values. In PVE there is the possibility to varyate the attribute values between respondents. This enables to examine the sensitivity of participants to these values. However, this would add an extra variation in the experiment and thereby obscure the effects of the variation in the contextual information.

How is it varied?

The manipulation of information is based on two treatments. These treatments are based on the outcomes of the literature review, the expert interviews and the document analysis. These analyses resulted in three main outcomes: technicalities and broader discussion (e.g. on climate change) should not be included in the message, information should be presented in a specific and tangible way, and information provision should be flexible.

Regarding the latter, providing flexible information is possible in PVE and also implemented in recent PVE such as the PVE on lifting Corona measures in the Netherlands (Mouter et al., 2020a). In that PVE, respondents could click on external links to obtain more detailed information on the problems with testing for immunity and more figures on the spreading of the virus. However, testing a flexible information provision approach is not feasible for this research. The case study concerns a too small scale and no extra detailed information is available, leaving no room for differentiation of information between the two groups of respondents. Moreover, the exploratory analyses do not provide suggestions on which forms of flexible information provision can be tested. This would mean that several ways of providing flexible information should be tested in the information, making the experiment too large for this master thesis and not compatible for a study that involves a low expected number of respondents.

The other two approaches can be tested and are therefore translated into two treatments. The first treatment is shaped around the first finding that technicalities and the debate on climate change and climate adaptation should be avoided. To test whether avoiding controversial subjects influences the feeling of empowerment to make a choice, the first treatment includes these two elements in the information selection. Thereby, it involves technicalities and places the planned work in the green area in the broader discussion on needed climate adaptation measures. This treatment is the opposite of the approach following from the interviews. Thus, in case this treatment does not affect the feeling of empowerment and the evaluation of the information provision it would indicate that the approach of the interviewees is based on false assumptions.

Treatment 2 tests whether presenting information in a specific and tangible way helps people to make a substantiated choice. Testing this approach can be done by making the information localized – e.g. by adding street names or by making the consequences for a household explicit instead of speaking in abstract terms on city level – or by supporting the textual information with visualizations. Problematic in the chosen case study is that the scale level on which participants are asked to make a choice already is quite small: the redevelopment of a green zone of ca. 37.000 m² that only has a function for the neighbourhood. Therefore, the information presented in treatment 1 will also be localized to some degree, resulting in an indistinct difference between the two treatments. Adding visualizations creates a significant difference between the two messages, so this form of message variation is chosen for this approach. However, this means that no conclusions can be drawn on whether a localized message helps in reducing psychological distance. Besides, the visualizations will be mostly related to the spatial planning considerations and not to the UCA consequences. However, they also give insight in what the water storage will look like.

How are these treatments applied?

The two treatments are both applied in their own PVE-survey. These two different PVE-surveys are divided over the respondents. Another option would be to differentiate only one policy option in one PVE-survey distributed to all respondents. However, as elaborated below, most of the manipulation in the first treatment is done in the introduction text and in treatment 2 pictures are added to the policy options. Manipulating the information for only one policy option would confuse participants, for example, because only one option will have visualisations. Besides, it is not possible to differentiate the introduction text in one PVE-survey.

The two treatments are compared with each other on the selections made by respondents and on their answers to the follow-up questions. Another possibility was to compare the two groups of respondents with a treatment with a group of respondents receiving a PVE-survey with no treatment. However, it is difficult to define what a 'neutral' information provision would be for this 'control group'. Besides, too little respondents were expected to spread three different PVE-surveys in the neighbourhood.

To ensure a good comparison between the two treatments, the information is structured as follows. In both treatments a basic text is used for the introduction and the policy option texts. The manipulation of information is implemented by adding additional texts. The use of basic and additional texts based on guidelines also ensures the isolation of the information manipulation. Composing the basic and additional text is based on guidelines presented below.

Guidelines for basic texts used in both treatments

- *The information should be complete, correct, relevant and timely. The information is provided by the municipality and therefore assumed to fulfil these four criteria. The information provision was checked by the municipality in several iterations (see Section 3.3.3). In the case*

that there was an indication that information missed or was incorrect, the Reyeroord+ team was asked for more information.

- *The guideline above is partly interpreted by findings following from the expert interviews and document analysis. This means that complete, correct, relevant, and timely information involves being open and transparent and stating a clear objective for the policy options.*
- *Disclaimers are placed about the costs and figures and by the images (see Section 3.3.3 for an explanation why disclaimers are placed).*

Guidelines treatment 1

- *Place the policy options and their objective in the wider public debate on climate change and climate adaptation. This means that climate change problems and effects are discussed and that the motivation for UCA is explained. This is mostly done in the introduction text by using texts from the Weatherwise program text.*
- *If possible, technicalities are added. This means that figures such as surface areas, volumes and the amount of levelling up are added. In addition, this treatment elaborates on technical details of, for example, the sewage system used for the water storage.*

In first instance, the use of scenario's was part of the guidelines of treatment 1. However, in order to keep the texts concise and since the information from the municipality was too little to base scenario's on, this guideline was omitted.

Guidelines treatment 2

- *Texts should be as specific, tangible and appealing as possible. This means that texts are shorter compared to the first treatment (especially in the introduction) and that abstract terms as biodiversity are elaborated in a tangible way.*
- *All policy options are presented with a picture that shows a map of the water storage, a section/profile of the water storage, and one or two images that give an impression on what the option will look like.*
- *The information should be provided in simple language (this therefore implicitly applies to the basic text).*
- *The information should be provided in a broad way (input of citizens not constraint to the water storage). This was interpreted as a focus on an improvement of the living environment instead a focus on the debate on climate change.*

All five policy option texts followed the same structure. First, the water storage capacity and the water storage design were discussed. Subsequently, the design of the green area was elaborated. Thirdly, the cost allocation was explained and the consequences of the option were illustrated. All policy option texts ended with a description of the operation of the levelling up. Appendix E shows the full texts together with the help page, a transcription of the instruction video text, and the closing text.

3.3.2 Questionnaire

After the respondents have filled in the PVE-survey, they receive follow-up questions in which they are asked to evaluate the PVE as a method and the information provided in the method. The complete questionnaire to test as presented in the webtool can be found in Appendix F. The questionnaire consists of statements scored by respondents on Likert scales and several open questions. Therefore, it gives insight in the perception of respondents on the quality of the information provision and how they perceive their empowerment. The questionnaire does not provide insight in whether respondents are objectively empowered. All statements and questions are based on the theoretical framework,

shown in Table 3.2, that follows from the exploratory research. Statements and questions divided into six categories: motivations for given answers, a check whether reported difference can be explained by the manipulation, an evaluation of the quality of the information provision, an evaluation of the empowerment by the information provision, an evaluation of the PVE method, and a check for possible influences on the processing of information. The six categories are elaborated below, but first the chronology of the questionnaire is discussed.

The questionnaire was presented in the same order as presented below. The motivation of answers and check for manipulation were asked first, as these questions ask directly for the choices made in the experiment. The questions are therefore asked when the selection is fresh in one's mind. Thereafter the evaluation of the information, empowerment and PVE method follow. The questions that check for influences on the processing of information (e.g. attitudes towards climate change) are asked last because these statements could influence the interpretation of the earlier statement and therefore affect the answers in the rest of the experiment. However, since the manipulation check has the same subject – climate change – this could have shifted the focus of respondents towards climate change and thereby bias the answers to the last statement. Still, this chronology of questions was chosen, since another order of questions would have biased the manipulation check. The questionnaire closes with the demographic characteristics of respondents, since these questions intuitively signal for the end of an experiment.

1. Motivation for given answers

Participants are always asked in a PVE-survey to elaborate their selection of policy options. The webtool shows each policy option selected by the participants and asks them to motivate their allocation of points for each selected option. These qualitative answers help to interpret the quantitative results following from the PVE-survey. Respondents were not asked to explain the choice to allocate zero points to (a part of) the policy options.

2. Check whether reported difference can be explained by the manipulation

In research on the effects of information provision by using information manipulation it is commonplace to check whether the manipulation explains the reported differences between treatments (e.g. De Vries et al., 2014). In this research this is done in two ways. First, respondents are asked which information was most important and which information was least important in making the selection of policy options. The answer possibilities were the introduction, the texts accompanying the options and the attributes. Since the attributes were not manipulated, these questions allow for filtering out respondents who used the attributes as primary selection criterium.

Besides, respondents were asked whether they received information about climate change and the relation between climate change and the water storage. Only respondents under treatment 1 received this information. The check indicates whether the selection and other answers are influenced by the treatments. Respondents in treatment 1 that state they have received the information have processed the information and therefore are more likely to use it in filling in the PVE-survey and questionnaire. The key feature of the second treatment, the provided pictures, were not checked in a manipulation check since these are very obvious.

3. Evaluation of the quality of the information provision

The first two steps of the described flow of information are used to evaluate the information provision. Respondents are asked to assess the quality of the information selection (Table 3.5) and information presentation (Table 3.6). This enables to study differences in the evaluation between the treatments.

As for the evaluation of the selection of information the four elements – information should be correct, complete, timely and relevant – discussed in literature are rated by respondents. Likewise,

respondents are asked to evaluate the following points on information selection emerging from the interviews. Is it clear for participants what the end goal of the proposed policy options is? Do respondents think that information is trustworthy (since two interviewees emphasized that the facilitator should be open and transparent)? Respondents are also asked to rate the attainability of information in the PVE-survey.

Finally, the complexity of the information is tested by asking to what extent respondents think that the information was comprehensible. The perceived complexity of information influences the processing of information but was asked in this part of the questionnaire since it was more related to the statements used to assess the information selection.

Table 3.5 Statements to evaluate the quality of the information selection

Attitudes	Statements
Perceived completeness	The information provided by the different options was complete
Perceived relevance	The provided information was relevant
Perceived correctness 1	The provided information was correct
Perceived correctness 2	The provided information was accurate
Perceived timeliness	The provided information was timely
Perceived attainability 1	The information was specific and tangible
Perceived attainability 2	In the information the perspective of the citizens of Rotterdam is considered well enough
Perceived comprehensibility 1	I understood the information completely
Perceived comprehensibility 2	I understood the necessity of the different options
Trust	I found the information reliable

The list of attitudes does not cover all possible attitudes. Therefore, the following open question was asked to fill in any gaps and to interpret the outcomes of the Likert scales: What kind of information would you like to have had in addition/did you miss?

The evaluation of the information presentation asked for perceived attainability, simplicity and approachability – all elements that followed from the exploratory analyses. Another element included in the framework was creativity. However, not all elements could be asked for in the questionnaire considering the needed conciseness of the questionnaire. Creativity is more a condition for the information presentation and is difficult to translate into an attitude by respondents. Therefore, creativity was not assessed by using Likert scales. However, as for the evaluation of the information selection, the following open question was added to fill in any gaps in the assessment by respondents: How can the presentation of the information be improved?

Table 3.6 Statements to evaluate the quality of the information presentation

Attitudes	Statements
Perceived attainability 3	The way in which the information was presented appeals to me
Perceived simplicity 1	I found the presented information too complicated
Perceived simplicity 2	I found the presented information too simple
Perceived approachability	The information was presented in an approachable ('laagdrempelig') way

4. Evaluation of the empowerment by the information provision

Eventually, the participants should be empowered to be able to participate. This can be done by providing information. The questionnaire included four statements (see Table 3.7) that check to what extent respondents feel empowered to make a substantiated choice on basis of the information provided. The questionnaire therefore tests the perceived empowerment of participants, not the

objective empowerment. Testing the perceived empowerment, eventually indicates to what extent participants think the participation process was meaningful on this particular aspect.

Table 3.7 Statements to evaluate the empowerment of participants by the information provision

Attitudes	Statements
Convinced	I am convinced about my choices in this experiment
Substantiated	The provided information enabled me to make a substantiated choice
Receive	I received enough information to make a choice
Voice	This method of participation provides me with enough voice in the development of the water storage

5. Evaluation of the PVE method

The medium of information transfer in this experiment is the PVE webtool. The method is also evaluated by using statements that are used in earlier PVE-surveys (see Table 3.8). These statements test the realism of the method, whether respondents are convinced of their choice(s) and if they would recommend the municipality to use the method in the future.

Table 3.8 Statements to evaluate the PVE method

Attitudes	Statements
Realistic	I find this a realistic experiment
Involve	I think that the municipality should use this method to involve citizens in their policy making
Experiment	This experiment provides the municipality with relevant information for making choices about the water storage and the redevelopment of the green area

6. Check for possible influences on or because of the processing of information by participants

As followed from the exploratory analysis the processing of information, the third step of the information flow, is influenced by several elements. These possible influences may therefore explain differences found in the selection of policy options or answers in the other categories of this questionnaire. Therefore, the elements are assessed as follows.

Firstly, the attitudes towards the subject and participation in general can influence the processing of information. The first four rows of Table 3.9 show the statements that reflect the attitudes of respondents towards UCA and participation in UCA.

Secondly, the knowledge level on UCA of participants is questioned since it followed from the interviews that this has influence on the processing of information and since this research especially studies information provision to participants with no or little prior knowledge on UCA. However, it is hard to examine someone’s knowledge level in two statements and the results will therefore be limited. In this research the knowledge level was assessed by asking for familiarity with the topic of UCA and by asking if respondents are familiar with initiatives in the municipality that are related to UCA.

Thirdly, psychological distance is questioned with four statements that cover the four aspects of psychological distance: temporal, geographical, societal and uncertainty. The statements are based on the list of statements used by Jones et al. (2017) in their research to the influence of psychological distance on communication about UCA.

The framework lists several elements that were not included in the questionnaire. For example, experiences, capacities and skills are named as other important characteristics having an influence on the ability of participants to participate. However, such characteristics can only be researched in an interview-styled analysis. The questionnaire is too short to provide for a good image

of experiences, capacities and skills of respondents. The same goes for the misinterpretation of information. This is important in the processing of information; however, it is problematic to ask respondents to evaluate to what extent they misinterpreted the information by Likert scales or other closed questions. However, the motivations stated at the beginning of the questionnaire can indicate how participants interpreted the information.

Table 3.9 Statements to check for possible influences on the processing of information

Attitude	Statement
Worried	I am worried about climate change
Municipality	The municipality should intervene to adapt to the effects of climate change
Design	Citizens should be involved in the design of climate change policies
Responsible	Citizens are responsible for adapting their properties (e.g. house or garden) to effects of climate change such as extreme heat and water nuisance
Knowledge level 1	In my professional life I work on climate change, climate adaptation or sustainability
Knowledge level 2	I am familiar with the term 'urban climate adaptation'
Psychological distance - Geographic	In Reyerood/Rotterdam we experience the effects of climate change such as extreme heat, water nuisance, drought, subsidence, etc.
Psychological distance - Social	Climate change is likely to have a big impact on people like me
Psychological distance - Temporal	The effects of climate change are likely to affect future generation
Psychological distance - Uncertainty	It is uncertain what the effects of climate change will be

Finally, an image of the respondents needs to be created, since the characteristics of participants influence the processing of information by them. Therefore, demographical and socio-economic characteristics, as in earlier PVE's, are asked for. These characteristics are: gender, age, income, zip code (to check whether respondents live in Reyerood), living situation, working situation and education. Besides, political preferences of respondents are usually questioned to allow for an analysis on whether political preferences can predict a preference for a selection of policy options. In this case the political preferences are represented by the most recent municipal elections in Rotterdam, since the subject of the PVE is on a city level. The outcomes of this part of the questionnaire also give in insight in the heterogeneity in the respondent groups and enables to test whether the samples are representative.

3.3.3 Testing the PVE-survey and questionnaire

The PVE-survey and questionnaire were tested in three rounds. First, a person unfamiliar with the subject and the case checked the PVE-survey texts. The texts were reviewed on clarity, language and necessity of the information. The test was not yet done in the webtool, the texts were presented on paper. This first test round indicated that several terms needed more explanation, that the wording of the attributes should be clearer, and that some explanation of elements in the option texts should be replaced to the introduction. Testing the questionnaire revealed that several statements should be corrected or improved into less ambiguous statements and that more familiar terms should be included. Also, the wish for a short explanation above (the categories of) questions was suggested.

In the second round the two treatments were tested by two persons unfamiliar with the subject and case. This test was done in the webtool environment. Each person was assigned one of the treatments. The outcomes of this test were as follows. Firstly, the texts were perceived too long, especially the introduction and the instruction texts. This also resulted in the experiment taking more than 30 minutes. After this test, the texts were shortened to improve the clarity and to shorten the

duration to approximately 20 minutes. Secondly, the test revealed that more explanation about the (advantages of the) levelling up and about some of the attributes was needed. Thirdly, some suggestions on the use of simple language were made. Fourthly, the test persons suggested to present the option texts by using bullet points or present the most important information in a table like the attributes table. However, this suggestion was neglected in this research as it would result in an extra manipulation of information and thereby distort the isolation of the manipulation effect. Finally, the questionnaire was checked. The test persons indicated several questions and statements that needed some clarity and suggested to re-order the questions, as the sequence of statements and questions was counter-intuitive (demographical questions were asked before the processing of information statements). Moreover, it appeared that the questionnaire was perceived too long. However, leaving out more questions would compromise the wholeness of the analysis too much. Therefore, the layout of the statement was made more concise by clustering the statements in the categories introduced in Section 3.3.2 (see Appendix F for the used layout).

In the final round, the webtool and its content was checked on errors, missing elements and clarity by someone that saw the survey for the first time. This resulted in some improvements in language.

Throughout the process of designing the PVE, the Reyeroord+ team was deeply involved. Multiple versions of the PVE-survey were provided with feedback. The team mostly checked whether the options were in line with the plans of the municipality and whether statements mentioned in the texts were accurate and correct. This led to corrections of the costs, adjustments in the consequences related to the levelling up of the green area and changes in the number of policy options. In addition, the Reyeroord+ team stressed the importance of simple language and expectation management.

The team was afraid that the pictures in treatment 2 would lead to false expectations and therefore complication in the forthcoming process of designing plans for the green area. However, since the pictures were a critical element in the study, we decided to use the pictures with a disclaimer in the introduction text and in the pictures. Later on, a similar disclaimer was added for the costs and capacity figures to both treatments. These disclaimers make clear that the provided pictures and figures are indications and that the content of the policy options can change. For example, the municipality is looking for alternatives for levelling up the green area to tackle subsidence.

3.3.4 Attracting respondents

As mentioned in Section 2.5, people living in Reyeroord older than 15 years formed the population of this study. The respondents for the information manipulation experiment were found in the following ways. Firstly, a letter was spread in the area showed in Figure 3.8. On request of the municipality, the 1540 households in this area live closest to the green area. This was because these households were also invited for a public meeting on the 19th of March 2020. This meeting was cancelled because of the Coronavirus prevention measures; however, these households were aware of the plans for the green area and the participatory approach of the municipality. The first 1000 letters were spread on the 27th of May 2020 to the households indicated with blue in Figure 3.8. The other 540 households, orange in Figure 3.8, received a letter on the 3rd of June 2020.



Figure 3.8 Spreading area of the letter to promote the PVE-survey. The blue area received the letter on the 27th of May, the orange area on the 3rd of June

The letter (see Appendix G) – written in collaboration with the communication department of the municipality – informed citizens about the research and encouraged them to participate. The call to action was strengthened by referring to the cancelled public meeting and the wish of the municipality to test new (online) forms of participation. Therefore, a link to a podcast recorded by the Reyeroord+ team about the green area and participation was added.

The second medium used to promote the research was the newsletter of the Reyeroord+ program. This newsletter has a reach of 300-400 people living in the neighbourhood that are interested in the plans of the team. The text published in the newsletter can be found in Appendix G. The possibility to click on the link of the PVE in the newsletter made it easier for respondents to take part in the research.

Finally, several social media platforms directed to Reyeroord were asked to post about the research on their page. This was done since physical promotion in the neighbourhood was not possible because of the Coronavirus prevention measures. However, no platforms answered to the request. Therefore, the survey was only distributed online via the newsletter.

To persuade people to participate, they could leave their email address and have a chance in winning one of the four gift cards to the value of €25,-. The gift cards were assigned randomly. The email addresses were not used in the rest of the experiment and were deleted after the winners were informed about the price.

The respondents were divided over the two treatment by changing the source link behind the directing link every day. The moments were not exactly the same every day. For example, after the release of the newsletter the link was changed to treatment 2 since the number of respondents for treatment 1 were higher – since treatment 1 was open on the first day of spreading the letters.

4 Results

In this chapter the results of the analyses following from sub questions 3, 4 and 5 are presented. The chapter starts with the characteristics of the dataset and how it was recoded. Subsequently, the descriptive results of the sample are presented and the representativeness of the sample is tested. Thereafter, the results of the PVE-survey are discussed. This includes an analysis of the effect of the treatments on the distribution of points by participants and a qualitative analysis of the motivations by participants. In the fifth section, the analysis of the evaluation by participants – both quantitative as qualitative – is presented, followed by a discussion of the results of the evaluation by policy makers. The chapter closes with a section on the triangulation of the results of all analyses.

4.1 Dataset

Between the 27th of May and 12th of June 2020 41 participants took part in the information manipulation experiment. 20 respondents filled in the PVE-survey with treatment 1 and 21 respondents finished treatment 2. However, one response in treatment 2 was filled in by a participant living in a zip code area located outside Rotterdam. This response was excluded, since only people living in Reyerwaard could participate in the information manipulation experiment. Hence, the final sample consists of 40 responses distributed equally over the two treatments.

The total sample includes a considerable number of missing values. Apart from respondents that did not fill in answers, the answer “I rather not say” in the questionnaire was reported as a missing value. Most missing values are found in the motivations for the distribution of points and in the questionnaire. In most cases, the missing values are related to respondents (two in treatment 1 and four in treatment 2) that only filled in the PVE-survey and that did not fill in the questionnaire. Furthermore, the variables income and political party voted for have a substantial number of missing values. However, these missing values are not related to other characteristics of these respondents such as gender or age.

4.2 Descriptive results

4.2.1 Sample characteristics

Tables 4.1 and 4.2 show the socio-demographical characteristics of the total sample and the samples of the two treatments. For all characteristics at least 17,5% of the respondents gave no answer. Most of these respondents were in treatment 1. Income and the political party voted for in the last municipal election were not filled in by half of the respondents. The percentages of both the frequencies of answers with and without the missing values are presented, because this can have quite some influence on the dataset since the sample size is quite small. Some of the categories have been recoded to broader categories (see Table 4.1 and 4.2). The same is done for political parties voted for; the recoding of this variable can be found in Appendix H.

The most important insights from the sample characteristics are as follows. The total sample is almost equally distributed in the case of gender. However, the distribution in the second treatment shows an overrepresentation of women. The next section discusses what this means for the representativeness of the sample. Age is evenly spread over the samples. However, the group of 75+ is not represented in the samples, while they are 10% of the total population. This may be the result of the older generation lacking the digital skills to join PVE. Remarkably, the categories 56-65 and 66-75 are represented substantially, which contradicts the hypothesis that the older generation was discouraged by digital illiteracy. People younger than 15 years were not allowed to participate.

Regarding education a high share of respondents with a high education level can be seen. Half of the sample is highly educated and in treatment 1 it is more than half. This may indicate that, like in other studies, highly educated people are more willing or better able to participate.

Table 4.1 Sample characteristics; NA stands for missing value (1/2)

			Total sample		Sample treatment 1		Sample treatment 2		
			% of sample	% of sample without NA	% of sample	% of sample without NA	% of sample	% of sample without NA	
Gender	Male		45.5	45.5	45.0	56.3	30.0	35.3	
	Female		45.0	54.5	35.0	43.8	55.0	64.7	
	NA		17.5	-	20.0	-	15.0	-	
Age	15-25		2.5	3.0	5.0	6.3	0.0	0.0	
	26-35		27.5	33.3	25.0	31.3	30.0	35.3	
	36-45		15.0	18.2	10.0	12.5	20.0	23.5	
	46-55		7.5	9.1	10.0	12.5	5.0	5.9	
	56-65		17.5	21.2	10.0	12.5	25.0	29.4	
	66-75		12.5	15.2	20.0	25.0	5.0	5.9	
	75+		0.0	0.0	0.0	0.0	0.0	0.0	
	NA		17.5	-	20.0	-	15.0	-	
Education	Low	Basisschool of geen diploma	0.0	0.0	0.0	0.0	0.0	0.0	
		Vmbo-kader Vmbo-basis Mbo 1	7.5	9.1	5.0	5.9	10.0	12,5	
		Vmbo-gemengd Vmbo-t Havo (onderbouw) Vwo (onderbouw)	0.0	0.0	0.0	0.0	0.0	0,0	
		Medium	Mbo 2 Mbo 3 Mbo 4	15.0	18.2	20.0	23.5	10.0	12,5
	Havo (bovenbouw) Vwo (bovenbouw)		10.0	12.1	5.0	5.9	15.0	18,8	
	High	Hbo-bachelor Wo-bachelor	25.0	30.3	30.0	35.3	20.0	25,0	
		Hbo-master Wo-master Doctor (PhD)	25.0	30.3	25.0	29.4	25.0	31,3	
		NA	17.5	-	15.0	-	0.2	-	
	Income	Less than 10.000		0.0	0.0	0.0	0.0	0.0	0.0
		10.000-20.000		5.0	9.5	10.0	15.4	0.0	0.0
20.000-30.000			5.0	9.5	10.0	15.4	0.0	0.0	
30.000-40.000			7.5	14.3	10.0	15.4	5.0	12.5	
40.000-50.000			20.0	38.1	20.0	30.8	20.0	50.0	
50.000-60.000			5.0	9.5	10.0	15.4	0.0	0.0	
60.000-70.000			5.0	9.5	0.0	0.0	10.0	25.0	
70.000-80.000			2.5	4.8	0.0	0.0	5.0	12.5	
80.000-90.000			2.5	4.8	5.0	7.7	0.0	0.0	
90.000-100.000			0.0	0.0	0.0	0.0	0.0	0.0	
100.000 or more			0.0	0.0	0.0	0.0	0.0	0.0	
NA			47.5	-	35.0	-	60.0	-	

Table 4.2 Sample characteristics; NA stands for missing value (2/2)

			Total sample		Sample treatment 1		Sample treatment 2	
			% of sample	% of sample without NA	% of sample	% of sample without NA	% of sample	% of sample without NA
Living situation	One person household	Single without children living at home	30.0	36.4	35.0	41.2	25.0	31,3
	Household with children	Single with children living at home	0.0	0.0	0.0	0.0	0.0	0,0
		Living together/married with children living at home	25.0	30.3	10.0	11.8	40.0	50,0
	Household without children	Living together/married without children living at home	22.5	27.3	30.0	35.3	15.0	18,8
		Single with roommates	2.5	3.0	5.0	5.9	0.0	0,0
		Other	2.5	3.0	5.0	5.9	0.0	0,0
	NA		17.5	-	15.0	-	20.0	-
Work situation		Paid work (up to 20 hours per week)	5,0	6.1	5.0	5.9	5.0	6.3
		Paid work (20 to 35 hours per week)	20,0	24.2	15.0	17.6	25.0	31.3
		Paid work (35 hours per week or more)	35,0	42.4	45.0	52.9	25.0	31.3
		Retired	12,5	15.2	15.0	17.6	10.0	12.5
		Student/in training	0,0	0.0	0.0	0.0	0.0	0.0
		No paid work	2,5	3.0	0.0	0.0	5.0	6.3
		Other	7,5	9.1	5.0	5.9	10.0	12.5
	NA		17,5	-	15.0	-	20.0	-
Political party		Left-globalist	7,5	15.8	5.0	11.1	10.0	20.0
		Left-nationalist	20,0	42.1	20.0	44.4	20.0	40.0
		Right-globalist	10,0	21.1	10.0	22.2	10.0	20.0
		Right-nationalist	10,0	21.1	10.0	22.2	10.0	20.0
		Other	0,0	0.0	0.0	0.0	0.0	0.0
	NA		52,5	-	55.0	-	50.0	-

Income is spread evenly over the total sample with a peak for people earning 40,000-50,000 euro. A closer look at the treatments shows that respondents with lower incomes filled in treatment 1 and respondents with higher incomes filled in the second treatment. However, no definite statement can be made about the income distribution in the sample since almost half of the sample did not fill in their income.

Furthermore, the descriptive results show that the samples do not include people who are single and live with children. Besides, there are no students in the sample and the percentage of retired people is low. Respondents voted mostly on parties that are categorized as left-nationalist. However, as for income the share of respondents who did not answer this question is high.

4.2.2 Representativeness of the samples

To indicate to what extent the results of the analyses hold for the whole population of Reyeroord the representativeness of the samples is tested. Therefore, data from the database of Statistics Netherlands (CBS) is used. Data on the level of the zip code 3079 were available. This zip code includes the neighbourhood of Reyeroord, but also the neighbourhoods of Hordijkerveld and Kreekhuizen. However, this data was used since it is the best representation of the population of Reyeroord. The distributions of gender, age and living situation in the population are known for 2019. The data on education level comes from 2014, since newer data was not available. The outcomes of the Chi-square tests, used for testing the representativeness, can be found in Appendix H. The results will be presented in this section.

Firstly, Chi-square tests were performed for the total sample of 40 respondents. The total sample turns out to be representative for gender, age and living situation. The test was not significant for education. However, this is partly caused by the fact that the test could not properly be performed since the expected value of more than 20% of the categories was lower than 5. This is the result of the low number of respondents in the sample.

The samples of the treatments are both representative for gender. For age, living situation and education no significant similarities between samples and population could be found. However, this can be caused by the same problem as for the representativeness on education of the total sample.

4.3 PVE-survey results

In this section, the results of the PVE-survey are presented. First, the quantitative results are discussed. This includes descriptive results of the distribution of points and the results of the multiple regression analysis. Secondly, the results of the analysis of the motivations behind the distribution of points are discussed. The results provide an answer to the third sub research question: *What is the effect of different information provisions on the outcomes of a PVE, what are similarities and differences?*

4.3.1 Quantitative results

The data of the 40 respondents show that 37 respondents used all hundred points in stating their preferences for the options. One respondent in treatment 2 did not use any points. However, this respondent did fill in the questionnaire. Therefore, the selection of this respondent can be identified as a protest vote and the response was used in the analysis. The other two respondents that did not use all points filled in treatment 1. One respondent used only 35 points out of hundred. This respondent did not fill in the questionnaire, which makes it hard to interpret why not all points were used. But there is no indication that it was a mistake, but that only 35 points were assigned on purpose. This is different for the other respondent. This participant used 10 points, but from the comments and the answers in the questionnaire there is no clue that this was on purpose. It is assumed that the respondent meant to distribute all points but reduced them with a factor 10. Therefore, this response was corrected by multiplying the allocated points by ten.

First, the frequencies with which options are selected (see Table 4.3) are presented. In the total sample options 4 and 5 – representing the values ‘nature’ and ‘progressive’ – have been chosen most often. However, there is not much difference with option 3 which represents the value ‘family’. And although option 1 and 2 – respectively reflecting the values ‘conservative’ and ‘liberal’ – have been selected less, the numbers are still half or more of the frequencies of options 4 and 5. This may indicate for a divergent preference among the respondents.

When examining the treatment samples, the same spread over the options as in the total sample is found. However, for option 1 a difference between the treatments stands out. The option is only half as much chosen in treatment 2.

Table 4.3 The frequency of respondents that allocated points to an option

	Option 1	Option 2	Option 3	Option 4	Option 5
Total sample	15	22	27	30	30
Treatment 1	10	12	14	15	13
Treatment 2	5	10	13	15	17

In Table 4.4 – that shows the average distribution of points to options – a similar pattern as for the frequencies is observed. Option 4 has the highest points followed by options 3 and 5. However, a definite preference cannot be observed.

In comparing the treatments, again a similar pattern as for the frequencies is observed. There is a considerable difference in points assigned to option 1 when compared to the other options.

Table 4.4 The average points allocated to the options

	Option 1	Option 2	Option 3	Option 4	Option 5
Total sample	9.85	14.25	21.45	26.05	24.28
Treatment 1	14.20	13.25	20.40	26.60	22.30
Treatment 2	5.50	15.25	22.50	25.50	26.25

In describing the selection of points, also the maximum and minimum number of points distributed (Table 4.5 and Table 4.6) are considered. The maximum number of points shows a different image. In the total sample there is not much difference in the maximum number of points distributed. All options have received at least 80 points from one respondent. This again indicates that there is variety in the preferences for the green area of respondents. The fact that all options have a minimum of 0 points also is an indication for this variety.

The comparison of the treatments shows more divergence, especially for options 1 and 2. Respondents in treatment 2 only assign half of the maximum points to option 1 if compared to treatment 1. For option 2 this is the other way around.

Table 4.5 The maximum points allocated to the options

	Option 1	Option 2	Option 3	Option 4	Option 5
Total sample	80	100	100	80	100
Treatment 1	80	50	100	60	100
Treatment 2	40	100	80	80	70

Table 4.6 The minimum points allocate to the options

	Option 1	Option 2	Option 3	Option 4	Option 5
Total sample	0	0	0	0	0
Treatment 1	0	0	0	0	0
Treatment 2	0	0	0	0	0

The descriptive results of the selections made by respondents show a slight preference for option 4 which focuses on an improvement of nature in the neighbourhood. However, there is not much difference with options 3 and 5. This could be explained by the fact that nature also is an element in these options. On the other hand, the results show that the preferences of respondents are quite divergent and that not one option or aspect of an options stand out. The comparison of the treatments

indicates that there is an effect of the treatments on the preference for option 1. This hypothesis will also be tested in the multiple regression analysis.

Multiple regression analysis

To analyse which factors influence the allocation of points to an option, a multiple regression analysis is performed. The factors tested are the attitudes that affect the processing of information, the socio-demographic characteristics of respondents and the treatments. The main focus of this analysis is to find out whether the treatments affect the amount of points assigned to an option, however, as follows from the theoretical framework the other factors can also be of influence. It is chosen to do a multiple regression analysis for every option separately. This enables to interpret the influence of especially the treatments on each option better.

The socio-demographic variables and the treatment variable are not continuous variables. Therefore, they were dummy coded (see Appendix I). Only income was assumed continuous. Recoding this variable would lead to a high number of categories and except for the last option – which was not selected by any respondent – all values have the same range. The influences of psychological distance, attitudes towards climate change and participation, and the knowledge level on UCA were tested with Likert scales and are therefore considered to be continuous variables.

Table 4.7 Descriptive results of the statements reflecting the attitudes that may influence the processing of information (1=totally disagree; 2=disagree; 3=neutral; 4=agree; 5=totally agree); NA stands for missing value

	Frequencies total sample						Total sample		Treatment 1		Treatment 2	
	1	2	3	4	5	NA	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Worried	2	3	9	15	6	5	3.57	1.065	3.72	0.895	3.41	1.228
Municipality	1	0	9	17	8	5	3.89	0.867	4.06	0.639	3.71	1.047
Design	1	1	4	19	9	6	4.00	0.888	4.28	0.575	3.69	1.078
Responsible	1	6	9	12	7	5	3.51	1.095	3.56	1.247	3.47	0.943
Knowledge 1	9	8	10	4	4	5	2.60	1.311	2.78	1.517	2.41	1.064
Knowledge 2	4	15	6	5	4	6	2.71	1.219	2.83	1.339	2.56	1.094
Geographic	2	4	5	17	7	5	3.66	1.110	3.50	1.150	3.82	1.074
Social	4	9	16	5	0	6	2.65	0.884	2.78	0.943	2.50	0.816
Temporal	3	15	6	9	1	6	2.71	1.060	2.83	1.200	2.56	0.892
Uncertainty	1	11	6	10	7	5	3.31	1.207	3.61	1.243	3.00	1.118

Table 4.7 shows the descriptive results of the scores on the Likert scales. The attitudes towards climate change, participation and the role of the municipality are on average positive. This means that there is little resistance to the debate on climate change and participation among respondents. The results on the two knowledge statements show that most of the respondents do not have a lot of knowledge on UCA, but some diversity among respondents is observed. The observations on psychological distance show a divergent image. A majority of the respondents agrees that the effects of climate change are experienced in the neighbourhood. But on average they disagree that the effects of climate change are very uncertain or will be experienced by future generations. In other words, more uncertainty, temporal and social distance is experienced compared to geographical distance.

The questions were asked after respondents received information in the PVE-survey. A bias is possible since treatment 1 received more information on UCA and climate change. However, an independent samples t-test and a Mann-Whitney U test show that the differences observed in the attitudes between treatment cannot be explained by the treatments (see Appendix I).

The results of the multiple regression analysis are elaborated in Appendix I, here the most important insights are discussed. In performing the regression analysis some complications arose. The total

sample size is relatively small and on the socio-demographic variables the number of missing values was high, especially for income and political party voted for in most recent municipal elections. Therefore, four iterations, all with a different approach towards the missing values, were executed. All iterations used the stepwise method since the enter method did not result in significant coefficients.

Table 4.8 shows the four iterations. In the first iteration, all variables were included and a listwise deletion was performed. Iteration 2 also used listwise deletion but excluded income and political party voted for. Iteration 3 and 4 both replaced missing values by the mean of other responses on the variables. Iteration 3 excluded income and political party voted for, where iteration 4 included all variables.

The results show that in all iterations there are options that have no significant coefficients. Furthermore, it is observed that in none of the iterations the treatment is of influence on the allocation of points to any of the options. Both the attitudes related to the processing of information and the socio-demographic variables are possible explainers of the allocation of points. For example, geographic distance is of influence on option 1 in all iterations. How less geographic distance on climate change effects is perceived, how lower the points for option 1. This is in line with the hypothesis that people that experience distance to geographical effects are more likely to choose for the conservative option. Besides, respondents that think the municipality is responsible for interventions against climate change effects are less likely to give points to the liberal option. However, the results of the multiple regression analysis show several contradictory results. For example, in the case more temporal distance is perceived, respondents were less likely to allocate points to the first option.

Overall, it can be concluded that the treatments have no effect on the distribution of points. The selection of points can be explained by characteristics that are also related to the processing of information and the heterogeneity among participants.

Table 4.8 Results of the multiple regression analysis. Options that did not have significant coefficients are not included in the table. The coefficients describe the relationship between the independent variable (points assigned to an option) and the dependent variable (attitudes or socio-demographic characteristics) in the case that all other dependent variables are kept constant

			Coef.	Std. Err.	Standardized coef.	t	P
Iteration 1	Option 1	Constant	50.12	7.92		6.33	0.00
		Geographic	-10.85	2.12	-0.83	-5.12	0.00
	Option 3	Constant	35.40	8.45		4.19	0.00
		Uncertainty	-7.20	2.32	-0.67	-3.11	0.01
	Option 5	Constant	35.00	5.59		6.26	0.00
Right-nationalist		-35.00	14.79	-0.56	-2.37	0.04	
Iteration 2	Option 1	Constant	-14.32	8.95		-1.60	0.12
		Temporal	10.45	3.16	0.55	3.31	0.00
	Option 2	Constant	70.76	15.70		4.51	0.00
		Municipality	-14.74	3.98	-0.60	-3.70	0.00
	Option 4	Constant	-1.09	11.84		-0.09	0.93
		Geographic	8.53	3.22	0.47	2.64	0.01
	Option 5	Constant	-39.05	21.35		-1.83	0.08
		Municipality	14.67	5.13	0.49	2.86	0.01
Male		18.72	8.70	0.37	2.15	0.04	
Iteration 3	Option 1	Constant	16.25	14.39		1.13	0.27
		Geographic	-6.51	2.53	-0.38	-2.57	0.01
		Temporal	6.43	2.69	0.35	2.39	0.02
	Option 2	Constant	55.12	14.07		3.92	0.00
		Municipality	-10.52	3.55	-0.43	-2.97	0.01
	Option 4	Constant	24.06	4.42		5.45	0.00
		One person	17.38	7.05	0.36	2.47	0.02
		Age medium	-16.60	7.55	-0.32	-2.20	0.03
	Option 5	Constant	-15.57	17.67		-0.88	0.38
		Municipality	10.26	4.45	0.35	2.30	0.03
Iteration 4	Option 1	Constant	9.50	13.23		0.72	0.48
		Geographic	-6.48	2.29	-0.37	-2.83	0.01
		Left-nationalist	18.35	6.10	0.35	3.01	0.00
		Temporal	6.03	2.44	0.33	2.47	0.02
	Option 2	Constant	55.12	14.07		3.92	0.00
		Municipality	-10.52	3.55	-0.43	-2.97	0.01
	Option 4	Constant	-47.75	19.31		-2.47	0.02
		Income	10.46	2.14	0.63	4.90	0.00
		Geographic	9.37	2.59	0.46	3.62	0.00
		Children	-40.16	7.05	-0.80	-5.70	0.00
		Paid work	25.71	6.94	0.43	3.70	0.00
		Education medium	19.37	6.48	0.39	2.99	0.01
		Temporal	-5.98	2.73	-0.28	-2.19	0.04
	Option 5	Constant	-15.57	17.67		-0.88	0.38
Municipality		10.26	4.45	0.35	2.30	0.03	

4.3.2 Qualitative results

For every option respondents assigned points to, they were asked to motivate their choice. These statements were analysed and the most important results are presented here. 30 respondents filled in motivations, of which 17 received treatment 1 and 13 treatment 2. The respondents that did not motivate their choices show no shared preference for one or a selection of options. First the motivation per option are discussed, followed by some general insights.

Option 1 - Conservative

The low costs of option 1 are mostly named as motivation to assign points to the option. A majority of the respondents focus on economy (*zuinigheid*) and efficiency in their motivation. This is in line with conservative value behind this option.

The motivations for this option show a difference between the two treatments. Respondents in treatment 2 (only two respondents in this treatment motivated their choice and the option was chosen by a low number of respondents in this treatment) make no remarks on costs. Where the quantitative results show a difference in the choice for this option between the two treatments that cannot be related to the treatments, the motivations may indicate a difference caused by the treatments. Participants in treatment 1 received more information on climate change and the broader discussion. In the expert interviews it was stated that this would lead to a narrowing of the considerations on a low level to costs. This also seems to happen in the PVE-survey.

In analysing the motivations, it became clear that respondents interpreted the distribution of points differently. A part of the participants assigned a low number of points to options they did not like. These participants spread all points over the options. Other respondents assigned zero points to options they disliked. This process was also visible by participants choosing option 1 in treatment 2. The two respondents that motivated their choice stated they preferred other options but still allocated a low number of points to the option. This may have distorted the results in the quantitative analysis.

Option 2 - Liberal

The motivations behind the choice for the second option show a great diversity of arguments. The group of respondents can be divided in strong proponents for more recreation and respondents that want to limit recreation in the green area. The reasons behind their position on recreation also differ. Participants in favour of recreation state that there is added value in recreation because of an increase in togetherness and solidarity, in the aesthetics of the area, in the diversity of possibilities in the park, and in opportunities for children. Opponents would like to see a focus on nature or on solving water nuisance in the neighbourhood instead of more possibilities for recreation in the area. There are some respondents that also name the increase of noise nuisance mostly related to playgrounds and loitering as argument against a recreational park. This is also seen in motivations of other options that share these elements with option 2. This shows that respondents use their own associations or knowledge in their choices and decisions.

In comparing the motivations for this option between the treatments, no difference can be found. Both treatments show a similar divergence in motivations.

Option 3 - Family

It was expected that the motivations for option 3 would include a focus on children. But only a couple of respondents use the advantages for children as argument and there is not a big difference with other options. Furthermore, the proximity of interventions to homes was not named, which was also expected. Only two respondents show some direction towards this argument. However, this can also be the result of the limited spreading area of the letter. Citizens living further away from the green area did not receive the letter. The courtyards are named as expected.

Where respondents did not name specifics of option 3, they do name elements related to other options such as nature, preparing for the future and climate change. Another remarkable observation is that several respondents express worries about the costs and what is happening to their private property. Since these concerns are not directly related to the levelling up of the green area, this may be caused by the fact that not all respondents understood what was meant by the courtyards. It seems

that some respondents interpreted the courtyards as private property, where these are owned by the municipality.

Two differences between the treatments stand out. 'Nature' is named more in motivations in treatment 2 than in treatment 1. This is the other way around for 'added value', which is named more in treatment 1. However, it is hard to interpret these differences, since it is not directly related to the characteristics of the treatments. A possible explanation could be found in the images, which show nature. However, this is also the case for the images in option 2 for which respondents in treatment 2 do not name 'nature'.

Option 4 - Nature

The motivations for this option show a strong focus on nature. However, the rationale behind the preference for nature differs between respondents. Participants want more nature because of the increase in biodiversity, because of possibilities for recreation, because it is good for the development of children, because of the presence of animals in the neighbourhood, because of an added value for the living environments, but also because it can bring cooling and enhance the air quality.

The motivations also show a difference between the treatments. The different rationales found at proponents for nature are mostly found in treatment 2. Respondents in treatment 1 also state nature as an important element of the option, but do not elaborate it. For example, children, cooling, maintenance, added value are named 2 times in treatment 2 and not in treatment 1.

Option 5 – Progressive

As expected, arguments about preparing for the future and effectiveness or efficiency are reflected in the motivations for option 5. Efficiency is perceived different than in option 1. In their motivations for option 5, respondents state that it is better to invest more at this moment in order to save money in the future. Besides, option 5 would cause less nuisance compared to other options in case more adaptation measures appear to be needed in the future. However, there is also a respondent that states that it is not always better to do more – i.e. create more water storage – in order to be ready for the future.

Remarkably, respondents include compensation for levelling up of private property as a positive element of this option. On the other hand, it is not named as a disadvantage of option 2 and 4, which may be caused by the fact that no motivation was asked for assigning zero points to an option. Besides, the average points assigned to option 4 and 5 show little difference. Levelling up does not seem to be an important factor in trade-offs made by participants.

In the motivations for this option a little difference is observed between the two options. Solving the problems on water nuisance is named more in treatment 1. This could be instigated by the fact that treatment 1 received more information on climate change. However, the difference is small.

In general, the motivations of respondents show little difference between the treatments in talking about climate change. It was expected that treatment 1 would encourage people to make statements on climate change, but none of the treatments show strong remarks related to climate change. Only for option 1 the motivations show a difference between the treatments that could be explained by the fact that treatment 1 engendered more strong remarks on the costs of options. However, the multiple regression analysis shows that this difference is not caused by the treatments.

[4.4 Evaluation by participants - Questionnaire results](#)

In this section, the results of the evaluation by participants are presented. The evaluation is done in the questionnaire and consists of a quantitative analysis of the attitudes scored on Likert scales and a qualitative analysis of the answers to the three open questions. The results provide an answer to the

fourth sub research question: *How do participants evaluate the PVE-surveys with different information provision in terms of quality of the information provision, empowerment and the method of PVE? What are similarities and differences?*

4.4.1 Quantitative results

In this section, the quantitative results of the questionnaire are presented. These results consist of the ranking of the statements on 5-point Likert scales. The statements (see Section 3.3.2) analysed here represent the attitudes of respondents towards the quality of the information selection, the quality of the information presentation, the extent to which they feel empowered to state informed preferences and PVE as participation method.

In the questionnaire of treatment 2 there was a mistake in the answer possibilities for the evaluation of PVE as a method. The fifth point on the Likert scale was named totally disagree instead of totally agree. Since the earlier questions were right and the presentation of answers intuitively indicated that the most right option represented totally agree this did not lead to corrupted answers by respondents. However, the PVE webtool exported the string value and not a coded value. Therefore, the dataset showed totally disagree as answer for both the first and fifth point on the Likert scale. It was decided to report the totally disagree answers in treatment 2 as missing values. This leads to a 3-point scale in treatment 2. Therefore, the scale in treatment 1 for the three statements representing the evaluation of PVE were also constructed to a 3-point scale. Totally disagree was recoded to disagree and totally agree to agree, since these points represent the same standpoint of respondents compared to neutral. In this way, not too much information was lost.

Table 4.9 shows the frequencies of answers selected by respondents in the total sample. The statements related to information selection, empowerment, and PVE, have average scores between neutral and agree. This indicates that respondents on average have positive attitudes towards these categories. For information presentation the scores of statements show a different image. 'Attainability 3' and 'approachability' are scored similar as the statements in the other categories. 'Simplicity 1' and 'simplicity 2' are scored negatively, however, this is caused by the formulation of these statements. The negative score on 'simplicity 1' indicates that respondents found the information not too simple and the negative score on 'simplicity 2' indicates that respondents found the information not too complicated. Overall, respondents are positive towards the information presentation.

In comparing the attitudes between treatments, the average scores do not show that much difference. Only for the attitudes 'attainability 3', 'substantiated', 'receive' and 'voice' there is some more difference, which could indicate that respondents in treatment 2 felt more empowered. However, to test whether the difference in average scores can be explained by the treatments, independent sample t-tests should be performed.

Table 4.9 Descriptive results of the attitudes on the quality of information provision, the feeling of empowerment and the PVE method (1=totally disagree; 2=disagree; 3=neutral; 4=agree; 5=totally agree); NA stands for missing value

	Frequencies total sample						Total sample		Treatment 1		Treatment 2	
	1	2	3	4	5	NA	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Completeness	1	3	8	17	5	6	3.65	0.950	3.72	1.018	3.56	0.892
Relevance	2	0	2	22	8	6	4.00	0.921	3.94	0.938	4.06	0.929
Correctness 1	0	2	10	18	4	6	3.71	0.760	3.78	0.732	3.63	0.806
Correctness 2	1	4	10	14	5	6	3.53	0.992	3.50	0.985	3.56	1.031
Timeliness	1	2	11	13	7	6	3.68	0.976	3.50	0.985	3.88	0.957
Attainability 1	2	2	9	15	5	7	3.58	1.032	3.50	1.098	3.67	0.976
Attainability 2	2	8	9	10	4	7	3.18	1.131	3.22	1.263	3.13	0.990
Comprehensibility 1	0	4	5	15	10	6	3.91	0.965	3.83	0.985	4.00	0.966
Comprehensibility 2	2	2	7	16	7	6	3.71	1.060	3.61	1.145	3.81	0.981
Trust	0	1	12	15	6	6	3.76	0.781	3.83	0.786	3.69	0.793
Attainability 3	3	4	7	16	4	6	3.41	1.131	3.06	1.259	3.81	0.834
Simplicity 1	9	14	5	5	1	6	2.26	1.109	2.39	1.145	2.13	1.088
Simplicity 2	3	18	9	3	1	6	2.44	0.894	2.44	0.984	2.44	0.814
Approachability	1	8	9	13	3	6	3.26	1.024	3.11	1.079	3.44	0.964
Convinced	1	2	1	22	7	7	3.97	0.883	3.94	0.899	4.00	0.894
Substantiated	2	6	2	20	3	7	3.48	1.093	3.24	1.300	3.75	0.775
Receive	1	5	5	19	3	7	3.55	0.971	3.41	1.176	3.69	0.704
Voice	3	6	8	12	4	7	3.24	1.173	3.06	1.249	3.44	1.094
Realistic	-	6	7	19	-	8	3.41	0.798	3.35	0.862	3.47	0.743
Involve	-	3	3	25	-	9	3.71	0.643	3.65	0.702	3.79	0.579
Experiment	-	5	3	23	-	9	3.58	0.765	3.53	0.800	3.64	0.745

The results of the independent sample t-tests are presented in Table 4.10. The null hypothesis for the test is that the difference in average scores cannot be explained by the treatments. Following from the Levene's test for equality of variances it can be assumed that the variances for all attitudes are equal, which is of influence on what output of the t-tests is used. As can be seen in Table 4.10, no difference in average scores is significant. Therefore, it is concluded that the difference cannot be explained by the treatments.

Table 4.10 Results of the independent samples t-test on all attitudes

		Number	Mean	Std. Dev.	Difference	T	P (2-tailed)
Completeness	Treatment 1	18	3.72	1.018	0.160	0.484	0.632
	Treatment 2	16	3.56	0.892			
Relevance	Treatment 1	18	3.94	0.938	-0.118	-0.368	0.715
	Treatment 2	16	4.06	0.929			
Correctness 1	Treatment 1	18	3.78	0.732	0.153	0.579	0.567
	Treatment 2	16	3.63	0.806			
Correctness 2	Treatment 1	18	3.50	0.985	-0.063	-0.181	0.858
	Treatment 2	16	3.56	1.031			
Timeliness	Treatment 1	18	3.50	0.985	-0.375	-1.123	0.270
	Treatment 2	16	3.88	0.957			
Attainability 1	Treatment 1	18	3.50	1.098	-0.167	-0.456	0.651
	Treatment 2	15	3.67	0.976			
Attainability 2	Treatment 1	18	3.22	1.263	0.089	0.222	0.826
	Treatment 2	15	3.13	0.990			
Comprehensibility 1	Treatment 1	18	3.83	0.985	-0.167	-0.497	0.623
	Treatment 2	16	4.00	0.966			
Comprehensibility 2	Treatment 1	18	3.61	1.145	-0.201	-0.547	0.588
	Treatment 2	16	3.81	0.981			
Trust	Treatment 1	18	3.83	0.786	0.146	0.538	0.594
	Treatment 2	16	3.69	0.793			
Attainability 3	Treatment 1	18	3.06	1.259	-0.757	-2.038	0.050
	Treatment 2	16	3.81	0.834			
Simplicity 1	Treatment 1	18	2.39	1.145	0.264	0.687	0.497
	Treatment 2	16	2.13	1.088			
Simplicity 2	Treatment 1	18	2.44	0.984	0.007	0.022	0.982
	Treatment 2	16	2.44	0.814			
Approachability	Treatment 1	18	3.11	1.079	-0.326	-0.925	0.362
	Treatment 2	16	3.44	0.964			
Convinced	Treatment 1	17	3.94	0.899	-0.059	-0.188	0.852
	Treatment 2	16	4.00	0.894			
Substantiated	Treatment 1	17	3.24	1.300	-0.515	-1.370	0.180
	Treatment 2	16	3.75	0.775			
Receive	Treatment 1	17	3.41	1.176	-0.276	-0.811	0.424
	Treatment 2	16	3.69	0.704			
Voice	Treatment 1	17	3.06	1.249	-0.379	-0.924	0.362
	Treatment 2	16	3.44	1.094			
Realistic	Treatment 1	17	3.35	0.862	-0.114	-0.397	0.694
	Treatment 2	15	3.47	0.743			
Involve	Treatment 1	17	3.65	0.702	-0.139	-0.591	0.559
	Treatment 2	14	3.79	0.579			
Experiment	Treatment 1	17	3.53	0.800	-0.113	-0.405	0.688
	Treatment 2	14	3.64	0.745			

To perform an independent samples t-test, the variable tested needs to be normally distributed in the sample. In samples bigger than 30, normal distribution is assumed but since the treatment samples include only 20 respondents the distribution of the attitude scores needs to be tested. From the Shapiro-Wilkinson tests performed – see Appendix J – it follows that a majority of the scores of the statements are not normally distributed over the treatment samples. Therefore, a non-parametric test equivalent to the independent samples t-test was performed: the Mann-Whitney U test (see Table 4.11).

Table 4.11 Results of the Mann-Whitney U test on all attitudes (α = not corrected for ties)

		Number	Mean Rank	Sum of Ranks	Mann-Whitney U	Asymp. Sig. (2-tailed)	Exact Sig. [2*(1-tailed Sig.)]
Completeness	Treatment 1	18	18.64	335.50	123.500	0.445	0.484 ^a
	Treatment 2	16	16.22	259.50			
Relevance	Treatment 1	18	16.72	301.00	130.000	0.568	0.646 ^a
	Treatment 2	16	18.38	294.00			
Correctness 1	Treatment 1	18	18.50	333.00	126.000	0.494	0.551 ^a
	Treatment 2	16	16.38	262.00			
Correctness 2	Treatment 1	18	17.31	311.50	140.500	0.899	0.905 ^a
	Treatment 2	16	17.72	283.50			
Timeliness	Treatment 1	18	15.56	280.00	109.000	0.204	0.237 ^a
	Treatment 2	16	19.69	315.00			
Attainability 1	Treatment 1	18	16.61	299.00	128.000	0.788	0.817 ^b
	Treatment 2	15	17.47	262.00			
Attainability 2	Treatment 1	18	17.67	318.00	123.000	0.654	0.682 ^a
	Treatment 2	15	16.20	243.00			
Comprehensibility 1	Treatment 1	18	16.64	299.50	128.500	0.570	0.597 ^a
	Treatment 2	16	18.47	295.50			
Comprehensibility 2	Treatment 1	18	16.86	303.50	132.500	0.672	0.695 ^a
	Treatment 2	16	18.22	291.50			
Trust	Treatment 1	18	18.08	325.50	133.500	0.697	0.721 ^a
	Treatment 2	16	16.84	269.50			
Attainability 3	Treatment 1	18	14.47	260.50	89.500	0.045	0.059 ^a
	Treatment 2	16	20.91	334.50			
Simplicity 1	Treatment 1	18	18.50	333.00	126.000	0.514	0.551 ^a
	Treatment 2	16	16.38	262.00			
Simplicity 2	Treatment 1	18	16.78	302.00	131.000	0.623	0.670 ^a
	Treatment 2	16	18.31	293.00			
Approachability	Treatment 1	18	16.25	292.50	121.500	0.416	0.443 ^a
	Treatment 2	16	18.91	302.50			
Convinced	Treatment 1	17	16.71	284.00	131.000	0.829	0.873 ^a
	Treatment 2	16	17.31	277.00			
Substantiated	Treatment 1	17	15.44	262.50	109.500	0.277	0.345 ^a
	Treatment 2	16	18.66	298.50			
Receive	Treatment 1	17	16.41	279.00	126.000	0.688	0.736 ^a
	Treatment 2	16	17.63	282.00			
Voice	Treatment 1	17	15.56	264.50	111.500	0.360	0.382 ^b
	Treatment 2	16	18.53	296.50			
Realistic	Treatment 1	17	16.12	274.00	121.000	0.780	0.823 ^a
	Treatment 2	15	16.93	254.00			
Involve	Treatment 1	17	15.35	261.00	108.000	0.526	0.681 ^a
	Treatment 2	14	16.79	235.00			
Experiment	Treatment 1	17	15.47	263.00	110.000	0.641	0.739 ^a
	Treatment 2	14	16.64	233.00			

The null-hypothesis for the Mann-Whitney U is the same as for the independent samples t-test. As Table 4.11 shows, there are (similarly to the results of the independent samples t-tests) no significant differences in the average scores of statements between the treatments.

The analysed statements comprise a long list that represents four attitude categories: quality of information selection, quality of information presentation, feeling of empowerment and PVE as a

method. A factor analysis could help decrease the number of variables analysed and can show whether the statements in one category also measure one attitude (Hair et al., 2013). The objective of a factor analysis is to construct interpretable summated scales. In Appendix K the factor analysis is presented. The analysis resulted in three factors:

1. Factor 1 comprises 'correctness 1', 'correctness 2', 'attainability 1', 'completeness', 'relevance', 'timeliness', 'comprehensibility 1', 'trust' and 'receive'. Except for 'comprehensibility 2' and 'attainability 2' all statements related to the quality of information selection are included in this factor. The receive statement that was categorized in empowerment asked respondents whether they thought they received enough information to state their preference. This also relates to the selection of information. Therefore, this factor represents the attitude of respondents towards the quality of the information selection.
2. Factor 2 consists of the statements 'approachability', 'attainability 3', 'voice' and 'comprehensibility 2'. This factor is related to whether the presentation of information connects to what respondents need, the extent to which respondents understand the necessity of the options and the extent to which the participation process provides them with a voice. This factor therefore represents the relation between information presentation and empowerment. The factor is called information presentation.
3. Factor 3 includes 'realistic', 'involve' and 'experiment' and therewith consists of all statements related to the evaluation of PVE. The factor is therefore called Evaluation PVE.

Table 4.12 shows the results of the independent sample t-tests for the differences in the factor scores between the two treatments. From the Levene's test for equality of variances it can be assumed that the variances of the treatments are equal. For none of the factors the null hypothesis is rejected. The differences in the average evaluation cannot be explained by the treatments.

Table 4.12 Results of the independent samples t-test on the three factors

		Number	Mean	Std. Dev.	Difference	T	P (2-tailed)
1. Information selection	Treatment 1	17	0.05	1.073	0.105	0.286	0.777
	Treatment 2	13	-0.06	0.893			
2. Information presentation	Treatment 1	17	-0.19	0.987	-0.444	-1.325	0.196
	Treatment 2	13	0.25	0.795			
3. Evaluation PVE	Treatment 1	17	0.04	1.012	0.102	0.295	0.770
	Treatment 2	13	-0.06	0.832			

However, the factor scores of the third factor are not normally distributed over the treatments (see Appendix J). Therefore, a Mann-Whitney U test is performed (see Table 4.13). Still no difference in factor scores can be explained by the treatments, since the null hypothesis is not rejected.

Table 4.13 Results of the Mann-Whitney U test on the three factors (α = not corrected for ties)

		Number	Mean Rank	Sum of Ranks	Mann-Whitney U	Asymp. Sig. (2-tailed)	Exact Sig. [2*(1-tailed Sig.)]
1. Information selection	Treatment 1	17	16.18	275.00	99.000	0.630	0.650 ^a
	Treatment 2	13	14.62	190.00			
2. Information presentation	Treatment 1	17	13.59	231.00	78.000	0.174	0.183 ^a
	Treatment 2	13	18.00	234.00			
3. Evaluation PVE	Treatment 1	17	15.24	259.00	106.000	0.851	0.869 ^a
	Treatment 2	13	15.85	206.00			

In the questionnaire a manipulation check was included. Respondents were asked if they received information about the broader discussion on climate change. In case respondents gave the right answer, it is assumed that they registered the information that was manipulated. It is possible that the differences in scores of these respondents can be explained by the treatments. Table 4.14 shows the number of respondents that answer the manipulation check right (yes for treatment 1 and no for treatment 2). It is observed that only half of the respondents filled in the manipulation check right. Especially in treatment 2, respondents state they did receive information on climate change, which can be explained by the fact that the basic text included some implicit references to climate change effects in discussing the motivation to realize a water storage.

Table 4.14 The frequency and percentage of respondents that answered the manipulation question right

	Frequency	Percentage
Total	21	52.5
Treatment 1	13	65.0
Treatment 2	8	40.0

Table 4.15 presents the result of the Mann-Whitney U test in which only the respondents that filled in the manipulation question right were included. For each factor, the null hypothesis can be rejected. Also in the case that only respondents are included that are likely to process the manipulation in the information no statistical significant differences in factor scores can be found.

Table 4.15 Results of the Mann-Whitney U test on the three factors only including the answers of respondents that answered the manipulation question right (a = not corrected for ties; b = a lower number of respondents compared to Table 4.14 because of missing values).

		Number	Mean Rank	Sum of Ranks	Mann-Whitney U	Asymp. Sig. (2-tailed)	Exact Sig. [2*(1-tailed Sig.)]
Information selection	Treatment 1	13	10.85	141.00	15.000	0.085	0.095 ^a
	Treatment 2	5 ^b	6.00	30.00			
Information presentation	Treatment 1	13	9.08	118.00	27.000	0.588	0.633 ^a
	Treatment 2	5 ^b	10.60	53.00			
Evaluation PVE	Treatment 1	13	9.69	126.00	30.000	0.805	0.849 ^a
	Treatment 2	5 ^b	9.00	45.00			

A second question was asked to respondents to check what information was used in distributing points over the policy options. Respondents needed to indicate which information they found most important: the introduction text, the text accompanying the policy options or the attributes. Here it is assumed that respondents who thought the attributes most important were less susceptible to the manipulation, since the attributes were not manipulated. Table 4.16 shows the respondents that gave a right answer to the manipulation check and that found the attributes not the most important information.

Table 4.16 The frequency and percentage of respondents that answered the manipulation question right and that found the attributes not the most important information source

	Frequency	Percentage
Total	11	27.5
Treatment 1	8	40.0
Treatment 2	4	20.0

A Mann-Whitney U test was performed with the selected responses (see Table 4.17). Again, the null hypothesis cannot be rejected. Filtering out respondents that did not use the manipulated information does not change the conclusion that the treatments have no effect on the factor scores.

Table 4.17 Results of the Mann-Whitney U test on the three factors only including the answers of respondents that answered the manipulation question right and that found the attributes not the most important information (a = not corrected for ties; b = a lower number of respondents compared to Table 4.16 because of missing values)

		Number	Mean Rank	Sum of Ranks	Mann-Whitney U	Asymp. Sig. (2-tailed)	Exact Sig. [2*(1-tailed Sig.)]
Information selection	Treatment 1	8	6.75	54.00	6.000	0.221	0.279 ^a
	Treatment 2	3 ^b	4.00	12.00			
Information presentation	Treatment 1	8	5.25	42.00	6.000	0.221	0.279 ^a
	Treatment 2	3 ^b	8.00	24.00			
Evaluation PVE	Treatment 1	8	6.50	52.00	8.000	0.414	0.497 ^a
	Treatment 2	3 ^b	4.67	14.00			

Concluding, it is observed that respondents on average are positive about the quality of the information selection and presentation, the extent to which they feel empowered and the PVE method. Surprisingly, the differences between the two samples cannot be explained by the treatments. The information provision and PVE are equally evaluated by the samples and both groups feel equally empowered.

4.4.2 Qualitative results

Respondents were asked three open questions in the questionnaire. The questions asked whether respondents missed any information, how the information presentation could be improved and what other comments respondents had on the PVE-survey. In discussing the results of the qualitative analysis of the answers, the themes of the three questions are used: the quality of the information selection, the quality of the information presentation and an evaluation of the PVE method.

Not all respondents filled in the open questions. The question on information selection was answered by seven respondents in treatment 1 and eleven respondents in treatment 2. Six respondents in treatment 1 and eleven respondents in treatment 2 answered the question on information presentation. The final question was answered by six respondents in treatment 1 and eight respondents in treatment 2. Some answers fitted better with the theme of other questions and were therefore switched to other themes.

Information selection

In discussing the information selection there are five respondents that make a general statement on the amount of information. Three of them are content with the amount of information. Of the other two respondents, one states that too much information was provided in the PVE-survey while the other has the feeling to be informed too little.

Other respondents clearly explain what information they miss. The information missed can be divided in two components. Firstly, there are seven respondents spread over the treatments that miss elements in the options or that would like more options. Respondents miss elements such as a dog walking area, the necessity behind options or information on what happens with lighting in the green area.

Secondly, nine respondents, again divided over the two treatments, ask for more detailed or more in-depth information. One respondent in treatment 1 asks for more details on the costs of the options and on what is exactly happening to the sewage system. Other respondents ask for clarification

on the location and what is meant by the courtyards. One respondent in treatment 1 also emailed during the experiment. The respondent was trying to calculate more detailed figures with the figures provided and found some errors as the figures were based on estimations. In treatment 2 there are also two respondents that do not understand what the courtyards are and there is one respondent that asks for more figures on climate change and water nuisance in Reyerood. The answers show no big difference between the two treatments, however, it seems that respondents that received more detailed information – treatment 1 – ask for more detail or ask questions about the details. It indicates that the demand or need for information is dependent on the information received.

Furthermore, there are respondents that miss information on how the PVE is embedded in the whole participation process of the green area and what the consequences of their preferences are.

Information presentation

In discussing the information presentation there are three respondents in treatment 1 that are content with the presentation against one respondent in treatment 2. As expected, there are seven respondents in the first treatment that ask for visualisations. The wanted visualisations vary between maps, drawings and images. Some respondents ask for a map only marking the area where others want impressions of each option. Surprisingly, in treatment 2 six respondents also make a remark on the visualisations when asked for improvements for the presentation. These respondents ask for a higher quality of the visualisations and for more visualisations. But there are also two respondents that would like videos or animations. So, where there is clear demand for simple visualizations in treatment 1, respondents in treatment 2 want more sophisticated visualisations. Similar to the demand for more detailed information, it is observed that the demand for certain visualisations depends on the visualisations received and that participants always ask for a bit more information or information of more quality.

Furthermore, five comments are placed about language errors, which turns out to be an important feature of the presentation of information. Another respondent makes a remark about the need for more attention to the textual information, which was less used by this respondent as the attributes were highlighted more. Another respondent is happy to be addressed formally. Finally, there is one respondent that asks for a better overview of information per paragraph and that proposes to use one subject per paragraph. This is something that also came forward in testing the PVE-survey. The attributes are presented in a clear overview, but the textual information misses such a listed overview.

PVE-survey

Respondents also evaluated the method PVE in their remarks. In both treatments, there were four respondents stating they like the method. However, also in both treatments, there are respondents that make comments about the difficulty of distributing points. Participants think it is too complicated or participants are afraid that other will not grasp the distribution of points. As mentioned in Section 4.3.2 it is also observed that respondents interpreted the distribution of points differently. There are also several comments of respondents who would like to make a choice between options instead of stating their preference with points. Two other respondents state that they want to be consulted on specific elements of the options instead of making choices between options that comprise a set of these elements. There is no difference between the treatments in evaluating PVE.

Additionally, respondents make comments on the follow-up questions. Participants remark that there was no option to state one did not vote in the elections and that the questionnaire was only about the quality of information and not about the green area. Two respondents found the socio-demographic characteristics questions inappropriate.

Finally, the answers show some critique on how the municipality approaches participation. Two respondents in treatment 1 want a better consultation of citizens. One of these respondents says that the municipality is not interested in what the citizens think.

Remarkably, there are eight respondents in the total sample that are concerned about the capacities of other respondents, which is also observed in other studies on PVE (e.g. Mouter et al., 2018). In treatment 1 participants are concerned that the language is too difficult or that the survey is too long for other respondents. But there is also a participant that says he or she cannot check the correctness of the information and that he or she hopes that other respondents are able to do so. In treatment 2, there are five respondents that comment about the difficulty of language and the length of the survey when talking about other respondents. One respondent who explicitly states he or she grasped the survey totally, thinks the threshold may be too high for others. Another respondent is concerned that the average citizen does not have a good overview of all affected interests.

In the questionnaire, there are more respondents that make a statement about other respondents when talking about the difficulty of the information or the method than respondents that state they themselves had difficulties with the PVE-survey. There may be a possibility that respondents use the statement about other respondents as a way to formulate that evaluation of the PVE-survey, but that they are not that much concerned about other respondents. However, it can also be a confirmation of the fact that participants are often underestimated by others. There is also a possibility that there are less respondents that stated they had difficulties as highly educated people are overrepresented. In the case that the comments say something about the complicatedness of the information, it was expected that there would be more comments for treatment 1. However, there is not much difference between the treatments, it is even a bit more in treatment 2.

During the experiment, respondents could send emails with questions or remarks on the subject and the method. Five respondents used this possibility. Two of them had technical problems with the webtool. When the problem was fixed, one of the two respondents commented that the webtool could be a problem for people that are digitally illiterate. Four of the respondents that sent an email asked for clarification of the options. Most questions concerned the possible implications of the redevelopment for private property. One respondent, as mentioned before, used the figures to calculate costs, volumes and surfaces and asked for clarification.

From the emails it can be concluded that respondents perceived the options in the PVE as a fixed set of options, although there were disclaimers in the survey that stated that the options were possible plans for the green area. This can be connected to the subject of the PVE-survey. The matter was a spatial development on a low scale level. Therefore, the options were very specific and there was a direct link with the close living environment. But it can also be caused by the fact that the plans for a green area are in an early stage and that this was one of the first times that citizens were asked to participate. Where participants felt they were restricted in what they could give as input, the municipality wanted to do a broad consultation.

The answers to the open questions in the questionnaire show that only a difference between treatments is observed when asked for information presentation. Respondents in treatment 1 have a clear need for visualisations. However, the group that did receive visualisations apparently wants to improve the visualisations. Furthermore, it is observed that within treatments there is a lot of diversity in the perception of the information selection and the method. The information missed varies widely among respondents. The same goes for the evaluation of the method. On the one hand there are respondents that find the method satisfying, where other point out the difficulty and the lack of intuitiveness of the method.

4.5 Evaluation by policy makers - Results

As final step in this research the use of the PVE and the tested information provisions were evaluated with three policy makers working for the Reyerood+ program. The results of the information manipulation experiment were presented to the policy makers before the evaluation. The results of the evaluation provide an answer to the fifth sub research question: *To what extent do the outcomes of the different PVE-surveys meet the needs and wishes of facilitators of participation, i.e. policy makers?*

First of all, the objectives of participation were discussed with the policy makers. Three main objectives following the three rationales behind participation can be elicited. Firstly, following the normative rationales the policy makers state that the citizens of Reyerood is in the centre of all decisions. One policy maker states: *“We do not have to live in the area, the citizens do”*. Furthermore, the realization of the water storage is not only a physical challenge but is above all a project on liveability. Only the citizens can say what they think is liveability and they also want to have a voice. Moreover, one policy maker states that it is in the DNA of the municipality to arrange public participation.

Secondly, the policy makers list two objectives related to the instrumental rationale. One policy maker states that with participation they want to encourage a *“feeling of ownership for the public space [by citizens, red.]”*. Besides, in the future citizens need to put effort in working on transitions, such as becoming an energy neutral neighbourhood. One policy maker emphasizes that in order to involve citizens in the future, you need to give them voice at the beginning of the process.

Finally, the policy makers stress that citizens provide valuable input, which is related to the substantive rationale. In Reyerood, one of the policy makers is doing research on how added value can be given to maintenance interventions in the public space. Therefore, you need to know what citizens value. Moreover, participation processes gather a lot of knowledge on what citizens need and what upsets citizens.

According to the policy makers these objectives are achieved by participation process that starts with an open dialogue between the municipality and citizens. This is contrary to traditional or established forms in participation where a predefined plan is presented on which citizens can comment. The Reyerood+ team structures the dialogue by using themes. The starting point for the dialogue is as follows: how to reduce complaints and when do the policy makers fulfil their task?

However, in evaluating the information provision in the information manipulation experiment the results show the boundaries of the new participation process. The policy makers agree that the demand for visualisations by participants shows that an open dialogue needs content and context. On the other hand, the visualisations restrict participants in the input they can give as it frames the possibilities, which undermines the objective of the municipality to gather as much as possible needs and preferences.

In discussing the information selection, it appears that the municipality already restricts the room for participants by deciding that the water storage needs to be realized in order to replace the sewage system. One policy maker states: *“there is no discussion whether the sewage system needs to be replaced [...] there is no one who will say: “No, I do not want my sewage system to function well”*. However, the same policy maker states that they need to explain these conditions better and what the relation with the water storage is. They already do this by introducing this condition in all communication in the participation process, and by a short movie and podcast they made.

In discussing the results of the PVE-survey, the policy makers state that they see similarities with the outcomes of their conversations with citizens. These conversations also show a wide diversity in wishes of citizens. From citizens that are very sceptical and do not want a water storage to citizens who want more nature or citizens that are doing a lot on UCA themselves.

The policy makers also emphasize some factors that may explain the results of the questionnaire and the effect of the treatments. Firstly, the citizens of Reyeroord are regularly confronted with the effects of climate change, mostly water nuisance. This may explain why the progressive option or the information in treatment 1 was experienced less controversial than expected. Furthermore, one policy maker stresses that the sewage system is already replaced in a part of the neighbourhood, where most of the spreading area of the letter does not know what the consequences are of the replacement. The policy makers states that this could have led to some confusion among respondents.

Furthermore, the results of the PVE were discussed. The policy makers satisfied with the outcomes of the PVE and want to present the results to citizens in the newsletter and in coming citizens meetings. One policy makers stresses: *“For both you and us it is simply important to show what the results are and how we take it with us in the plan making [...] like, yes we heard you, we take it seriously”*. The policy makers will involve the results in their conclusions, but they cannot exactly state how. This is related to their evaluation of the PVE method.

In evaluating the PVE method the policy makers clearly state that the PVE-survey came to early in the policy making process. Normally, the municipality would perform such a consultation in a later stadium of the process. This is also reflected in the fact that the participation process they started now starts with an open dialogue structured with themes. The policy makers think that the PVE in such an early stage is too restrictive, both for the policy makers that were not sure about what options to present and for citizens that may have not felt full freedom in giving input on the redevelopment of the green area. However, in a later stadium of the policy making process, they would want to use the method.

Furthermore, the policy makers emphasize that the explanation of the PVE method can be improved. There are two elements that need to be clearer. Firstly, how the method should be used. One policy makers states that the method is not fully intuitive, which also comes back in the comments of participants. Secondly, the relation between this research and the participation process needed to be clearer. One policy maker state: *“If the process is not clear, participants will also not understand the content”*. The policy makers recommend to introduce PVE in the future in citizens meetings and give respondents support in filling in the PVE at offline participation occasions. This could lead to more respondents and a better representation of the population in the sample, especially on education.

4.6 Triangulation: combining quantitative and qualitative results on information provision for effective participation

In this section, the quantitative and qualitative results are summarized, placed in context and combined into one story. Converging quantitative and qualitative results to obtain an enriched image of the object of research, is called triangulation and is an important concept in mixed methods research (Creswell & Plano Clark, 2017). Firstly, the participants perspective is discussed. This includes their evaluation of the information provision in the PVE in relation to the meaningfulness of participation. Thereafter, the perspective of the facilitator on information provision in PVE and how this relates to useful participation is discussed. Subsequently, the section explores how effective participation can be accomplished by designing an information provision. The section closes with discussing the generalizability of the results.

Participants

The evaluation by participants shows that on average they have positive attitudes towards the information provision, their empowerment and the PVE method. The quantitative analyses of both the allocation of points in the PVE and the attitudes of respondents show that observed differences cannot

be explained by the two information manipulation treatments. However, the qualitative analyses show a more complex relation between the information provision and the attitudes of participants. Participants are able to express clearly what information they missed or how it should be presented. However, it also shows that respondents take the provided information as starting point in their evaluation and that they always demand more information or information of better quality compared to this starting point. Still, visualisations – only provided in the second treatment, but often named by all respondents – appear to be critical in this participation process on redeveloping the green area. Nevertheless, apart from the visualizations, the wishes and needs of participants related to information provision are very divergent or heterogeneous.

Furthermore, the results show a relation of information provision and empowerment (although not related to the tested information provision approaches since differences could not be explained by the treatments). Respondents state that the difficulty or length of the information can discourage or hinder other citizens to fill in the PVE-survey. This seems to be supported by the fact that highly educated people are overrepresented in the total sample. However, the difficulty of the information does not seem to come from the complexity of the subject UCA. No respondents asked for more explanation on the objectives behind UCA or made statements that expressed a misinterpretation or misunderstanding of the UCA measures (apart from a demand for more detailed information on UCA). However, the fact that respondents did not perceive the information on UCA as complex may be explained by the characteristics of the case study and research approach. Citizens in Reyerwaard are regularly confronted with water nuisance, respondents lived in close proximity to the green area and during the experiment the problems related to drought in the Netherlands were in the news on a daily basis.

Besides, most comments related to empowerment or meaningfulness refer to the PVE method itself or the role of the municipality in realizing the water storage. Respondents think the method is not fully intuitive and state that the allocation of points is difficult or unclear. This is also observed in the fact that a group of respondents misinterpreted the fact that the policy options are possibilities, that the options can change and that respondents are not restricted in giving their input. Moreover, they state that it is unclear what the municipality does with the output of the PVE-survey. In other words, to what extent the input of citizens is used in the final plans.

Facilitator

Facilitators – both policy makers and civic organisations – were asked before the information manipulation experiment about their perception of useful participation. Accordingly, for Rotterdam, in general the objectives of participation in UCA are to inform and activate citizens and to facilitate bottom-up initiatives. Furthermore, the municipality has an instrumental objective for participation since it does not own all the land needed in making the city more climate adaptive.

From the evaluation after the experiment, it followed that Reyerwaard exercises these objectives in their own way. Although the policy makers of Reyerwaard+ state that they involve citizens in the policy making process to encourage them to take action themselves in the future, they emphasize that participation is mostly used to mobilize local knowledge – substantive rationale – and because citizens have the right to define their own living environment and to be heard – normative rationale. PVE fits these objectives as it facilitates a consultative participation process as intended by the policy makers.

The expert interviews and the evaluation show a similar approach on participation: the open dialogue or conversation between facilitator and participants. In theory, PVE is able to facilitate a dialogue that does not restrict the input of participant. The method presents all possible options of policy makers and provides insight in trade-offs to citizens. Moreover, apart from the delay in communication, PVE accommodates a two-way flow of information between the involved parties.

However, in practice, the status of the policy options leads to misinterpretation by participants. Options are perceived as possibilities that cannot be changed or combined, which is exactly what the municipality and the Reyeroord+ team want to prevent in the early stage of policy making process that the realization of the water storage is in. The disclaimers used in the PVE texts could not prevent this misinterpretation. Nonetheless, the policy makers acknowledge the dilemma in information provision which is also related to meaningfulness. Giving more information and context to participants will lead to more clearness for participants, but may result in a (perception of) a restricted portfolio of options. Whereas, providing participants with less information will result in more unclearness and less direction for participants, but provides them with more freedom to state their wishes and needs.

Combining useful and meaningful

In the case study it is observed that the municipality emphasizes the normative rationale for participation by giving citizens a voice in the redevelopment of their living environment. To achieve this normative rationale, the policy makers think that an open dialogue or deliberation is key and that PVE is too much restricting in the beginning of policy making processes. On the other hand, the Reyeroord+ team state that there will be no discussion on whether and how the water storage will be realized. They decided on the location and design of the water storage stating that these are the best options for citizens without consulting them (see Section 3.3.1). Hence, a conflict between objectives of the team is observed. The policy makers want an open dialogue but not on the core problem – realizing the water storage – but only on opportunities that follow from that realization – redeveloping the green area. It shows the heterogeneity within objectives for participation that result in a heterogeneity within useful participation and that meaningfulness for participants is conflicting with other goals of participation or policy making in general.

The heterogeneity is even more apparent in meaningful participation. Participants show a divergent need for information, on both the substantial level – information on the content of policy options – and procedural level – e.g. explanation of the method used and information on the consequences of participants' input.

Since both useful and meaningful participation are characterized by their heterogeneity, information provision that is able to connect these two forms of participation incorporates that heterogeneity. Information provision should be adapted to the wishes of participants and flexible in varying the information selection and presentation to participants. However, the information provision should also give insight in the different objectives of facilitators.

Generalizability

Moreover, the results of the analyses cannot be generalized to the whole population of Reyeroord, let alone bigger populations. While the total sample is representative for gender, age and living situation in Reyeroord, the treatments are only representative for gender. Besides, the sample is characterized by a high share of highly educated people, which can be of great influence on the processing of information and therefore on the outcomes of the information manipulation experiment. Hence, the results can be used as an indication on how information provision can be used to connect meaningful and useful participation in PVE's on complex subjects as UCA. More research is needed to understand the role of heterogeneity in information provision.

5 Conclusions

When implementing public participation for a complex subject such as urban climate adaptation (UCA), designing the information provision is challenging. Policy makers select and present information on basis of the available information and a perception of what participants need to participate. On the other side, participants have a need for a selection and presentation of information in order to give informed and motivated input. Aligning this supply of information – from the facilitator (i.e. policy makers) – with the demand for information – from participants (i.e. citizens) – turns out to be a delicate process that often fails in arriving at an optimal information provision. A similar trend is observed in Participatory Value Evaluation (PVE). An online participation in which participants are asked to state their preference on policy options. PVE can be used by facilitators for an information transfer to participants that are consulted on policy options. To this moment, little research has been done on how to connect the supply and demand for information in public participation, especially on UCA by using PVE. This research has gained insight in the effects of information selection and presentation on the capacity of participants to form informed opinions on UCA measures and strategies in consultative participation processes, especially in PVE.

In this chapter, the main conclusions of the research are presented. First, each sub research question is answered. Subsequently the main research question is answered and thereby a main conclusion is presented.

1. *What are the effects of information provision – shaped by the perception of useful participation by policy makers – to participants on their ability to participate meaningfully when asked to give their input via PVE?*

From the literature review it follows that effective participation consists of two components: useful and meaningful participation. From the facilitator's perspective, participation needs to be useful and participation is useful to the extent that the facilitators objectives for participation are fulfilled. Participants need meaningful participation which is ensured when all existing viewpoints are included and when the participants are representative for the targeted population. Eventually, this inclusion and representation should lead to direct and significant influence. Influence can be defined as the extent to which the input of participants is reflected in the participation process and its output. Moreover, the level of influence is materializing in the ratio between effort of participants and the extent to which their input is reflected in the participation process and outcome. Finally, the level of influence can be determined objectively by analysing the process and output, but also has a subjective dimension which relates to the feeling of influence by participants.

However, influence of participants is not a matter of course in participation. An information asymmetry exists between the facilitator and the participants. Facilitators possess substantive and procedural information that is not directly available for participants, which restricts them in giving input. Therefore, a flow of information from facilitator to participant emerges. From a participants' perspective this information is needed for meaningful participation. But since facilitators possess the information and have control over the transfer of information to participants, the information is selected and presented on basis of the facilitator's perception on useful participation.

The information provision therefore is not directly based on the needs of participants, while they need to become an equal party to the facilitator. However, to become an equal party, participants need to be empowered by the information provided. In other words, a learning process needs to be started that leads to the enablement of participants to give informed, motivated and deliberated input.

Therefore, information provision is a vital element in connecting useful and meaningful participation and thereby for achieving effective participation.

Information provision in public participation consists of a three-step flow of information. Firstly, an information selection is made by the facilitator. In the second step, the information is transferred to the participants. In this transfer the information presentation is determined by the facilitator. The information is processed by participants in the final step. The processing of information depends on, for example, participants' attitudes, experiences, knowledge, and skills and is of influence on how information needs to be presented to realize meaningful participation.

This flow of information is also recognized in PVE. In this method, policy makers make a selection of policy options that are presented in a webtool. The participants process the texts and attributes related to the options and state their preference on the options. And as in the basic flow of information, the perception of useful participation – what objectives facilitators want to achieve with participation – influences the selection of policy options and their presentation in the webtool. For example, the perception of facilitators effects the definition of the subject the participants are consulted on and the message can be framed by the facilitator. In the end, participants are consulted on the different policy options and it is this consultation in which PVE shows most potential for facilitating meaningful participation. PVE is able to involve a large group of participants that also involve citizens other than the usual suspects, thereby facilitating inclusion and representativeness. Moreover, it also presents realistic policy options, resulting in directly applicable input from participants for facilitators, thereby increasing the influence of participants.

2. How do policy makers and civil organisations, as facilitators of participation, perceive optimal information provision for enabling participants – with no or limited prior knowledge on UCA – to participate meaningfully?

In addition to the literature review, expert interviews and a document analysis were conducted. The expert interviews and document analysis were used to research how information is provided in participation in practice. In the end, comparing the results of the three analyses resulted in three approaches on how information could be provided to participants.

The first approach concerns the incorporation of the broader debate on climate change and technicalities of a subject in public participation on small scale levels. From the interviews and documents it follows that these elements should be avoided. It would distract from positive interventions on a small scale and would exclude citizens that do not understand the technicalities. However, the literature indicates that the public should not be underestimated and that these elements can be part of the information provision. Here a contrast between useful – represented by the interviews – and meaningful – reflected in the literature – participation is observed.

Secondly, both the literature and the interviews and documents indicate that information should be presented as localized, attainable and specific as possible. When participants can relate themselves to the information, the understanding of the information is enhanced.

Finally, especially in the literature, it is argued that the information provision should be adapted to the targeted population. This population is always heterogeneous. Deliberation and progressive disclosure of information are named as promising approaches to tailor information to a heterogeneous public. Progressive disclosure of information means that participants themselves can decide on the level of detail of the provided information, for example, by using external links.

After the literature review, expert interviews and document analysis were performed, an information manipulation experiment was set up in which two information treatments – based on the first two approaches mentioned before – within a PVE-survey were tested. This research design enables to

differentiate information between respondents and to study differences in their answers. The PVE-survey was accompanied by a questionnaire that provided more information on how respondents evaluated the information provision, their empowerment to give informed input and the PVE method. The questionnaire helped to identify and to interpret possible differences between the treatments.

The research design was suitable within the restrictions of the intelligent lockdown to halt the spreading of the Corona virus. The experiment was performed in the neighbourhood Reyeroord in the city of Rotterdam in which several urban transitions, such as UCA, come together.

3. *What is the effect of different information provisions on the outcomes of a PVE, what are similarities and differences?*

The outcomes of the PVE-surveys show that respondents do not demonstrate a preference for one of the five policy options that reflect the following values: conservative, liberal, family, nature and progressive. The frequency in the allocation of points to options and the average, maximum and minimum of points assigned to options show great diversity in the choices of respondents. However, the qualitative analysis shows a focus on nature, also in options representing other values.

At first glance there seem to be differences in the selection of points by participants that can be explained by the treatments. The number of respondents choosing option 1 is higher in treatment 1, the same goes for the average points assigned. This can be interpreted as a backlash of the introduction of the broader debate on climate change that narrows the motivation towards costs, which is also observed in the qualitative analysis. However, the performed multiple regression analysis shows that the treatments cannot explain the difference.

4. *How do participants evaluate the PVE-surveys with different information provision in terms of quality of the information provision, empowerment and the method of PVE? What are similarities and differences?*

The quantitative analysis of the attitudes towards the quality of information selection and presentation, the feeling of empowerment and the PVE method shows that the attitudes of participants are on average positive. Small differences between the treatments are observed, however, independent samples t-tests and Mann-Whitney U test show that the difference cannot be explained by the treatments, even when respondents that likely haven't processed the manipulated information are filtered out of the samples. This indicates that a manipulation of information following the first two approaches does have little effect on the evaluation of participation and information provision by the respondents.

However, in examining the qualitative results of the questionnaire a partially contradictory conclusion can be drawn. Especially, when asked for improvements of the information presentation a majority of respondents in treatment 1 – that did not receive visualisations – ask for visualisations. On the other hand, respondents that did receive visualisations ask for a higher quality and quantity of visualisations. Thus, visualisations play an important role in information presentation, especially in a subject related to spatial development. However, participants are likely to want more and better visualisations than they receive.

Similarly, respondents in both treatments have a clear idea on what information misses in the information selection. However, the specific information respondents wanted varied widely between participants. This confirms that the heterogeneity among participants is of great influence on their need for information.

The small differences in the evaluation of the empowerment of respondents by information and the PVE method could not be explained by the used information manipulations. This is also

reflected in the answers to the open question on evaluating the PVE-survey. The answers show no difference between the treatments, but in both treatments respondents give divergent answers. In both samples, there is a divide between participants that are enthusiastic about the method and respondents that find the method difficult or not intuitive.

Concludingly, the treatments do not have an effect on the evaluation of respondents on the information provision, their empowerment and the PVE method. However, since the qualitative analysis show divergence in especially empowerment and therefore meaningfulness for participants it seems that there are other factors related to the heterogeneity among participants that influence meaningfulness in PVE. It can be concluded that the perception of meaningful participation differs among participants and that this results in a heterogeneous need for specific information.

5. To what extent do the outcomes of the different PVE-surveys meet the needs and wishes of facilitators of participation, i.e. policy makers?

The results of the PVE-surveys and questionnaires were evaluated by policy makers working on UCA in Reyerwaard. For these policy makers, participation is useful when citizens have a voice in the interventions in their living environment. However, they also implement participation to obtain information possessed by citizens and use participation to ensure the engagement of citizens in the future. The transitions in the neighbourhood will ask for interventions done by citizens themselves, regarding the policy makers citizens will be more willing to do so if you involve them in the preliminary policy and decision-making processes.

According to the facilitators, PVE does not fit their objectives for participation in the early stage of policymaking they are in. They like to start with an open dialogue between the municipality and citizens. In such a dialogue, citizens should not be restricted or framed by preliminary plans of the municipality. However, the concept of PVE forces the facilitator to design policy options. Although the policy options reflect possibilities, the policy makers argue that citizens do not perceive it in this way. However, the policy makers agree that some content should be provided to participants. This was also observed in the demand for (more) visualizations by participants.

Concluding, according to the policy makers, PVE in its current form is more useful when used in a later stadium of policy-making processes. After a more open and exploratory phase of participation based on conversations, policy options can be defined. Thereafter, consultation on basis of PVE is more suitable.

Finally, the main research question is answered:

How to provide information to participants – with little prior knowledge on a complex subject such as UCA – in PVE in order to provide for both meaningful and useful participation?

Involving the broader debate on climate change and technicalities on UCA or making the information provided more attainable by adding visualisations statistically does not influence the way in which participants allocate points to policy options. It also does not affect the way in which they evaluate the quality of the information selection and presentation, their evaluation of their (feeling of) empowerment or their evaluation of the PVE method.

However, the qualitative results in this research show that within the information manipulation treatments there is variation between respondents. Participants show a great diversity in what information they missed in the selection and how they perceived the PVE method in terms of difficulty and intuitiveness. Besides, it is observed that visualisations are an important element in the

presentation of information, but that a majority of respondents is not entirely satisfied with the provided visualisations and that there is variety in what kind of visualisations respondents want.

It can be concluded that the wishes and needs for information in participation processes, particularly in PVE and UCA, differ widely among participants. In line with the exploratory research, heterogeneity of the public is key in designing information provision (e.g. Hine et al., 2016). The diverse backgrounds of participants, dependent on their attitudes, skills, experiences, etc. seems to influence the need for information considerably. In considering information provision and its influence on effective participation, this research shows that meaningful participation is obtained earlier when the heterogeneity of participants is included in the provision of information. Also because, the perception of meaningful participation varies among participants. Hence, it can be concluded that the third approach of using flexible information provision to answer to the heterogeneity of the public, although not tested in this research, is more suitable for achieving meaningful participation compared to the two approaches tested in this research. Flexible information provision can be achieved by using progressive disclosure of information or by making the participation process more deliberative.

In earlier studies, PVE included the possibility for participants to receive more detailed information and thereby a form of progressive disclosure of information. However, in its current form the flexibility of information provision in PVE is limited. The basis of the information selection are the policy options with their attributes. Besides, there is a delay in communication and only limited possibilities for iterative rounds of flow of information which restricts the possibility for deliberation. This lack of flexibility was also perceived by the policy makers in this study. According to them, PVE becomes useful when the policy making process is in a stadium in which the policy options are specific enough. PVE is not suitable for the exploratory phase of participation processes, since the policy makers feel restricted by the rigid structure of consultation in PVE that does not facilitate, to their opinion, an open dialogue between facilitator and participants.

Concluding, in accomplishing effective participation – in other words, connecting meaningful and useful participation – the information needs to incorporate the heterogeneous needs for information by participants. The responsibility to do this lies with the facilitator. However, the facilitator needs to combine often different objectives of participation of which some are contrary to ensuring information provision for meaningful participation. Therefore, one of the objectives or maybe the core objective of the facilitator (and therefore part of the perception of useful participation) should be to create an information provision that ensures meaningful participation.

6 Discussion and reflection

In this chapter, a discussion of the results of this research is presented. In Section 6.1, the consequences of the conclusions presented in Chapter 5 for the use of information in participation and PVE in particular are discussed. Subsequently, the limitations of this research are presented in Section 6.2. Thereafter, the recommendations for future research are listed in Section 6.3. Finally, in Section 6.4, some recommendations for policy makers working on information provision in participation and PVE are discussed.

6.1 Discussion

Information provision and the complexity of UCA

This report started with describing the complex context of UCA and its consequences for information provision in public participation in UCA. The results of the information manipulation experiment show no indication that UCA is not experienced as a complex subject by respondents. Apparently, both treatments were equally successful in reducing complexity and psychological distance. For example, treatment 1 was used to provide insight in the complexity by involving the broader debate on climate change and technicalities on UCA. The experts interviewed expected that this approach would be too difficult and would distract from the specific problem – realizing water storage. However, it turned out to be no problem, which supports the notion by Pearce et al. (2015) that you may not underestimate participants. On the other hand, it is still possible that both treatments were not able to reduce the complexity and psychological distance. From this case study, no definite answer on the effectiveness of the treatments can be given because of the complications associated to the case. The main focus of the PVE was spatial development and the realization of the water storage, and therewith UCA, was a side issue. Moreover, citizens are confronted regularly with water nuisance and have been informed several times about the need for UCA by the municipality. Supposedly, repetition and confrontation are effective information provision approaches to raise awareness on UCA.

Nonetheless, the preference of the municipality to combine the UCA measure – the water storage – with a spatial redevelopment project – the redevelopment of the green area – is logical. As mentioned in the introduction, UCA is applied on a small local level, is characterized by physical interventions, but above all is interrelated with other urban challenges such as redevelopment. However, since a focus on spatial development may distract from the core message on UCA, the main advantage of participation in UCA – i.e. raising awareness on climate risks and possible interventions, both mitigation and adaptation (Shi et al., 2016) – may be nullified. Whereas, the municipality also wants to activate citizens to involve themselves in UCA by participation and awareness raising.

A similar pattern is observed in providing visualisations, for which a clear need by participants is observed in both treatments. Respondents state that visualisations give better insight in, for example, what will happen in the green area and what the location of the interventions is. This finding is in line with both the literature review as the expert interviews. However, the use of visualisations may be problematic for the meaningfulness of participation. For example, in treatment 2 respondents asked for more visualisations of better quality. If this would be implemented in the information provision it is likely that more emphasis would have been put on the visual aspects and aesthetics of the policy options by participants. Therewith, less attention is given to other important elements in UCA such as the trade-offs to be made between costs, effectiveness of the water storage and levelling up. In this case, an emphasis on visualisations could lead to an incomplete information provision or processing of information and therefore to less empowerment of participants by the information.

However, it also depends on the type of visualisations used. For example, more technical images that explain the idea behind UCA measures can be used. However, that is not what respondents asked for.

PVE and the complexity of UCA

PVE is particularly useful for transferring knowledge on complex subjects. Problems are characterized as complex when a big range of possible solutions is available, when great uncertainties are associated to the problem, and in case trade-offs have to be made between different interests of stakeholders (Dewulf & Termeer, 2015). The policy options and attributes are an adequate vehicle to present the diversity of solutions and the trade-offs to be made by policy makers. However, from this research it follows that in case of a spatial development problem, visualisations are highly desirable for participants. The visualisations used in this research – including impressions on what the green area could look like – are no longer supporting features to the policy option texts and attributes. For example, a map to pinpoint a location would support the information given in a PVE by giving more context. In case the visualisations become more sophisticated, there is a possibility that the focus is on aesthetics and that the other criteria in PVE would be dominated. It raises questions on how to balance visual and textual information, also because at present most emphasis is given to textual information in PVE. This also raises the question whether PVE is the most suitable participation method to tackle spatial development problems. Falco & Kleinhans (2018b) described several methods focused on this subject which are based on interactive and collaborative maps. These methods have maps as starting point and are more adapted to spatial development practice. However, where the methods described by Falco & Kleinhans are directed towards one subject (spatial development), PVE has the potential to give a more enriched insight in a challenge that is interrelated with other urban challenges.

Information provision in general

The main conclusion of this research is that the heterogeneity of the public is key in designing the information provision in public participation. A part of the participants is satisfied with the information where others have a diverse demand for more or better quality information. The heterogeneity in wishes and needs for information – following from a heterogeneity in the perception of meaningfulness – can be incorporated by, first of all, involving the participants throughout the whole participation process. This enables participants to state their information preferences in an early stage, but also enables facilitators to transfer the message several times (facilitating repetition) and gives participants more time to process information, to ask for more or other information and to react. Furthermore, there is the possibility for progressive disclosure information that enables participants to determine the level of detail of information themselves (Guimaraes Pereira et al., 2003).

There is also the heterogeneity in the perception of useful participation by facilitators. The facilitator often wants to achieve different objectives by participation, whether or not conflicting. Then there are also the objectives for the policymaking process in general that influence the participation process, mostly leading to a diminished role for participation (Few et al., 2007). Eventually, the trade-offs made between the objectives affects the information provision. Therefore, to arrive at a satisfactory information provision for participants, the objective to accustom the flow of information to participants should be of high priority, i.e. be one of the main objectives. This can be accomplished by, for example, implementing models such as the Oregon model of the organisation Healthy Democracy in which the information on elections is selected and presented by fellow citizens to enhance the quality (Healthy Democracy, n.d.). This could also be translated to participation processes by letting participants design the information provision.

However, most of all a connection between the heterogeneity at the side of the participant and at the side of the facilitator must be found as this will lead to effective participation. Therefore, the starting point must be that there is no dilemma or trade-off between useful and meaningful participation. When the meaningfulness for participants increases, their input is of better quality and reflects of their real preferences better. Besides, it will lead to more satisfied participants (Few et al.,

2007). Therewith, the usefulness of participation also increases, especially in the case that (one of) the objective(s) of participation is to provide citizens with a voice (normative rationale). This is also observed in the notion of Shi et al. (2016, p. 132) on the advantages of participation in UCA: “inclusive planning processes can improve immediate climate equity outcomes and enhance long-term stability of adaptation programmes by conveying relevant and culturally accessible climate information to socially and environmentally vulnerable groups, respecting existing cultural knowledge and values, and engaging communities from the beginning”. The relation between meaningfulness and usefulness confirms the need for deliberation. Deliberative participation enables to exchange each other’s perception of effective participation, to find similarities and opportunities to improve participation.

Proof of concept

This research is a contribution to the empirical research on information provision in participation processes – specifically PVE – on complex subjects – specifically UCA. The results show a need for considering the heterogeneity of participants in the information provision. However, the conclusions are not generalizable to other participation processes in other cases. The study was performed on a specific subject and a specific participation method. Besides, the study is based on small samples that are not representative for the population of Reyerwaard, let alone for bigger populations.

Nevertheless, this research can be used as a proof of concept for further research. The study has shown the impact of the perception of useful participation by facilitators on information provision and that this has possible influence on participants. Moreover, it has shown that examining the empowerment of participants by information provision from the perspective of the useful participation is too narrow. The scheme presented in this research of useful participation influencing the flow of information, which influences the extent of empowerment and thereby the meaningfulness of participation can also be used the other way around. Where this research tested whether the supply of information meets the demand, it can also be used for analysing what the demand is and how the supply of information can be adapted. See the sections on limitations of this research (6.2) and future research (6.3) for an elaboration.

Possibilities for more flexibility in the information provision in PVE

As discussed in Section 2.5, the PVE method is characterized by its flexibility, for example, the range of policy areas it is applied in. Within the method there is also flexibility in providing information. Firstly, progressive disclosure of information can easily be implemented in PVE. In the PVE on lifting the corona measure in the Netherlands participants could click on hyperlinks if they wanted more detailed information on the problems with testing for immunity and more figures on the spreading of the virus (Mouter et al., 2020a). Although the feature is not systematically researched, it shows that there is the possibility for flexible information provision.

Secondly, early involvement of participants is also applied in earlier PVE's. In several cases, workshops were organized in which the policy options in the PVE-survey were designed by all affected stakeholders (e.g. Spruit et al., 2020). These workshops could also be used to determine the information selection and presentation, which could ensure a central role for participants in the design of information provision (similar to the Oregon model). However, completely covering the heterogeneity among citizens in these workshops is not possible. Again, as such a workshop is a public meeting there is a risk of self-selection and the attraction of usual suspects, thereby missing the needs of a part of possible participants of PVE and undermining one of the advantages of PVE.

Therefore, deliberative processes such as these workshops need to be implemented in the webtool itself. At present, there is little deliberation facilitated in the method. The flows of information between the facilitator and participants are limited; there is only a flow of information to participants to inform them about the policy options and attributes and a flow back when participants state their preferences. As soon as the options are presented, communication with the facilitator is only possible via email, causing a delay in communication (Wyss & Beste, 2017) and exclusion of other participants from this flow of information. However, there are possibilities to adapt the webtool. For example, the flows of information can be made more iterative by implementing the possibility for participants to ask questions in the webtool that are answered by the facilitator and visible for all participants. Such a chat box also can facilitate a discussion on the policy options between participants. Another possibility is to give the facilitator the possibility to add more information about policy options in a later stage and that participants are notified about the change. However, these solutions also weaken the simplicity in PVE. As discussion platform, the attention for the policy options may weaken and the evaluation may become less straight-forward. Then there is also the problem that participants that already filled in the PVE before more or improved information is given, cannot change their evaluation anymore.

The flexibility of PVE can also be an obstacle for the information provision in the method. The PVE method can be changed and accustomed, for example, to each policy domain or scale level. However, this focus on adapting the PVE to each situation has distracted from improving the usability of the method for participants. This is reflected in the observation that several respondents stated that they found the method difficult or counterintuitive or that they were afraid that other possible respondents would not finish the survey because of this. More and better procedural information could be a solution, which was also asked for by participants. However, this engenders a trade-off between procedural and content information, as the quantity of information in an average PVE-survey is already high. Therefore, familiarity and intuitiveness of the method need to be enlarged before all possibilities from the facilitators' perspective are explored.

Besides, there is also the statement by policy makers working in the Reyerwaard case that PVE is not suitable for the exploratory phase of policy-making. They point out the lack of deliberation and the inability to gather ideas, thoughts and wishes from participants without limiting or restricting their thoughts. They are right in stating that the policy options define the thought space of participants. But this was also more apparent in the studied case, since the policy options were on an operational level. Policy options on a strategic level (higher level) are more suitable for early stages of policy making processes as observed in the PVE on the energy transition (Mouter et al., 2020b).

6.2 Limitations and reflection

In this section, the limitations of this research are listed. The limitations are followed by reflections and recommendations to prevent these limitations in future.

Comprehensiveness of the research

This research concerns the connecting function of information provision between useful and meaningful participation. To study what both sides of effective participation mean in practice, a literature review was performed. For useful participation this was combined with expert interviews with policy makers and civic organisations working in public participation. However, no interviews or other analyses were performed to research what meaningful participation means for participants in practice before the PVE-survey and the information provision treatments were designed. Despite the input of the civic organisations, there was a gap of knowledge in what information citizens, especially in Reyeroord, need to participate meaningfully in the case of realizing the water storage. For the comprehensiveness of this research, it would have been convenient to examine the perceptions of both the facilitator and the participants in the participation process.

Secondly, there was a lack of comprehensiveness between the expert interviews and the evaluation. For the interviews, two policy makers of the municipality working on participation in UCA were interviewed. However, neither of them was involved in the Reyeroord+ program. Since, the evaluation was held with policy makers of this program, it would have been interesting if at least one of them was interviewed in the exploratory phase. This would have allowed for a comparison of the answers stated by the Reyeroord+ team before and after the information manipulation experiment.

Small sample sizes

In several steps of the research sample sizes were small, induced by a lack of time, the elaborateness of the research and the restrictions to halt the spreading of the Corona virus. Firstly, only four experts were interviewed in the exploratory phase. The interviewees all worked in Rotterdam and, except one, were involved in UCA. Therefore, the perspectives of expert in other municipalities or on other complex subjects missed. This could have increased the possibilities to make comparisons and provide a richer image of what useful participation is and how this influences information provision.

Similarly, the dataset of the information manipulation experiment included a small number of respondents. The total sample is representative for gender, age, and living situation. However, since the treatment samples are only representative for gender, it is hard to generalize outcomes to the population of Reyeroord. The sample also showed an overrepresentation of highly educated people, which could have influenced the results on the perception of quality of information. The small sample induced relatively major influence of missing values and therefore caused problems for the analyses. Non-parametric tests were needed and the multiple regression analysis is partially inconclusive. The sample size could have been bigger when a bigger spreading area for the promotion letter was chosen or by choosing a case study on higher scale level.

Ambiguity in the information manipulation experiment

As observed in the study of De Vries et al. (2014), isolating the information manipulation is important in research on the influence of information provision. The isolation of the manipulation in this research was defined by the two treatments. However, the isolation was weakened by the fact that the manipulation was implemented in both textual and visual information, in different parts of the PVE (introduction text and policy options texts) and because both treatments included information on UCA which undermined the effect of treatment 1 that was on the broader debate on climate change. A way to make the isolation more clear-cut is to give one group only the basic information and another group

a treatment with additional information. This would enable to research the addition in isolation instead of comparing two additions as was done in this research.

There was also some ambiguity in the PVE-survey. As a budget was not available, a PVE based on points was used. However, it turns out that a part of the respondents thought the evaluation based on points was difficult. Besides, respondents interpreted the distribution of points differently. Where part of the respondents allocated zero points to options they disliked, other respondents allocated points to all options and expressed their aversion to an option by allocating a low number of points. This ambiguity in the use of the PVE method may have influenced the average points allocated. But the unfamiliarity with the method by respondents, can also have influenced their feeling of empowerment. Therefore, the method needs to be explained better in future. Moreover, for studying the effect of information provision on empowerment it would have been better to use an established participation method known by respondents. Now, the effect of the information provision on empowerment is hard to separate from the fact that respondents did not fully understand PVE. However, the research in its current form has contributed to research on information provision specifically within PVE.

Finally, there was some ambiguity in the consequentialism of the PVE. The letter spread in the neighbourhood included a reference to the participation process of the municipality and a statement that the results would be shared with the municipality. However, the research was also framed as a master thesis project. It was not clear for citizens what the municipality would do with the results. The lack of consequentialism or the vagueness on it, may have influenced the results and the willingness among citizens to participate. This could have been prevented by making more clear agreements with the municipality on what consequences the results of the PVE-survey would have.

Missed information

In several steps of the research, input missed that could have helped in giving context to the gathered data. Firstly, respondents were not asked to motivate their choice to allocate no points to options. This could have provided interesting information on whether the treatments have effect on not choosing an option. Besides, it could have provided interesting insights for the municipality.

The questionnaire consisted of Likert scales and open questions. Not all elements in the theoretical framework could be included in the Likert scales, for example, what experiences respondents have with participation and UCA. This could have been solved by adding more open questions to the questionnaire. However, this would have increased the already high investment of time by participants. In addition, an open question on the feeling of empowerment was left out of the questionnaire. This was because the possible questions were ambiguous and to limit the time of the PVE-survey. However, this could have provided interesting insights. When this research would have been done a second time, it could have included observations of respondents. By observing their use of the PVE method and the information provided, more context could have been given to the Likert scales filled in by other participants.

Finally, the evaluation by policy makers could have been more elaborated. Now, only one-and-a-half hour was available for the presentation of the results, questions by civil servants related to the Reyerood+ program and an evaluation with the three policy makers responsible for the green area. The evaluation results give a good image of how the municipality experienced the information manipulation experiment; however, more time and separate conversations would have led to more sophisticated conclusions.

Case study

The case study also limited the achievement of the research objective. The main subject of the consultation of citizens was not UCA. The reason for redevelopment is the need for water storage,

however, the respondents only could give limited input on the water storage. On the other hand, the motivations of respondents show that they included UCA in their trade-offs, which may indicate they did not think UCA to be a complex or distant subject. However, this may be caused by the fact that citizens are regularly confronted with the effects of water nuisance in the neighbourhood. Thus, where respondents did involve elements of climate adaptation in their motivations, it is hard to say to what extent they were aware of the complexity of the subject matter.

The complexity could have been included by using a fictive case instead of the redevelopment of the green area. However, this could have caused more confusion among respondents. In the research the policy options were assumed to be final by respondents, while the municipality considered them to be possibilities in a broader policy window.

6.3 Future research

As mentioned in the first section, this research is mostly a proof of concept for further research on the wishes and needs on information provision by participants. Therefore, some suggestions on future research are presented. First, suggestions for research on information provision in public participation in general are given. Subsequently, some suggestions for research on the information provision in PVE are discussed.

Suggestions participation in general

In this research it is observed that the tested treatments do not affect the feeling of empowerment by participants and that the quality of the information provision is evaluated similarly. However, it is still unknown to what extent the treatments were successful in reducing complexity and psychological distance. Both treatments may have been successful, but it is also possible that they only have a marginal effect on the reducing these factors. In further research this can be examined by measuring the perceived complexity and psychological distance before and after the information manipulation experiment. It is also possible to apply both treatments to the respondents instead of dividing them over the respondents. In that case, respondents can compare the treatments themselves instead of comparing two different respondent groups. However, this brings the risk that respondents feel the need to choose between treatments and that the evaluation of one treatment is dependent on the evaluation of the other treatment.

But there is also the possibility that the effect of information provision is marginal on the perceived empowerment which was the main element tested in this research. For example, it is possible that information provision has little effect compared to factors such as the extent of consequentialism, the outcome desirability (Eaiasson et al. (2017) found that when the outcome of participation processes is in line with the participants' preference, they perceive the participation process as of more quality or more meaningful), the feeling of representation or inclusion and the weight participants attach to the extent to which their input is used. Therefore, research needs to be done in which the importance of information provision is examined. For example, by expanding the used questionnaire on attitudes on information provision with attitudes towards the factors mentioned above or by asking people to rank elements in the participation process on importance for their empowerment. Furthermore, it can be interesting to ask people to choose an information provision approach and to measure if this increases the feeling of empowerment compared to the situation in which participants are assigned a treatment. This enables to research what the effect is of the feeling of being involved in the design of the information provision.

Finally, empirical research on information provision in participation should also be focused on the needs and wishes of participants. At present the research is mostly focused on the influence of the supply of information on the choices participants make. However, this research showed that

the demand for information by participants is equally important and that in this the heterogeneity of the public is a key factor.

Suggestions for PVE research

For PVE research, there are two dilemmas that need to be solved in research on the information provision in the method. Firstly, the way in which heterogeneity and mass participation can go together. Heterogeneity still is a vague notion that is dependent on many factors such as characteristics, attitudes, experience, knowledge etc. Making information more flexible can be far-reaching if all these factors need to be incorporated. To what extent must messages be differentiated or made flexible? Is there a limit to heterogeneity or the extent to which heterogeneity needs to be considered? Is there a point in which flexibility or the degree of differentiation does not influence the feeling of empowerment anymore? Incorporating heterogeneity almost seems to implicate that information provision should be differentiated to the individual level. However, this would undermine the potential for mass participation of PVE. Therefore, it is also relevant to examine which elements in the information provision need to be differentiated. For example, it appears from this research that visualisations do not have to be differentiated that much, but that it is mostly about the level of detail of the textual information.

A similar dilemma is found between including deliberation in PVE and its potential for mass participation. Few et al. (2007) argue that small groups of participants that go through different participation methods are the only way to successfully facilitate deliberative participation. The small groups are not compatible with mass participation, but maybe that mixing participation methods can be a way to overcome the dilemma. For example, by starting with small scale deliberative processes, that are followed by a final mass consultation with PVE. However, this can also lead to a difference in meaningfulness between participants of the different methods. Therefore, the possibilities for deliberation in PVE as mentioned in Section 6.1 need to be examined.

Finally, in performing all suggested research, it is recommended to do comparative studies. In these comparative studies different information provision approaches (or improvements to the PVE method) are can be evaluated. Most important in these studies is to analyse the reaction and use of information and the participation method by participants. Observations or process tracing studies (e.g. Peeters, 2020) are appropriate methods to get more insight in the interaction between participant and the participation method or information provision.

6.4 Recommendations for policy makers

The recommendations for policy makers following from this research can be divided in two categories: general recommendations on information provision in participation and recommendations on using PVE.

Information provision in public participation

- From this research it can be concluded that the perceptions of policy makers on the right information provision does not always correspond with the information needed by participants. This may be caused by a too one-dimensional image of the public, thereby not recognizing the heterogeneity of the public. Therefore, it is recommended to start the participation process with asking participants what information is needed to give motivated input. This question should be combined with expectation management on the fact that not all information is available.

- When the needs of participants are available, it is important not to limit the designing of the information provision to the selection and presentation of the information. In designing the information provision, the facilitator should recognize how information is processed by participants, how the information provision can balance the information asymmetry between facilitator and participant and how the information can empower participants to participate meaningfully.
- Finally, it will be difficult to design the optimal information provision at once. Therefore, facilitators should ensure to make the information transfer iterative. An iterative flow of information enables participants to ask for more information or explanation of given information. The facilitator can react to that. In this it is important to make this extra information available for all participants, not only the participant asking for the extra information.

Recommendations on the information provision in PVE

- As PVE is a new and unfamiliar participation method for most participants, it is important to explain the method thoroughly. Apart from explaining the method in the introduction and the instruction video, it is recommended to introduce the method in other parts of the participation process such as citizens meetings. This 'offline' introduction also provides more context on how the results of PVE are embedded in the policy making process and enables the facilitator in helping participants to reduce barriers such as digital illiteracy or not having access to digital devices.
- Secondly, it is important to use a clear structure in the textual information in the PVE. This can be done by using one subject per paragraph or by using bullet points or tables instead of only texts.
- Finally, in other PVE's, workshops – sometimes in collaboration with citizens or other stakeholders – are used to design the policy options. These workshops could be used to find out what meaningful participation comprises for stakeholders or what information provision is needed.

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Appendix A Literature review

Literature review to define a knowledge gap – Selection of articles

A literature review was conducted to define the knowledge gap of this research (see Section 1.1). The databases Scopus and Google Scholar were used to search for sources. This search was done by combining the following search words: (urban) climate adaptation, (urban) water management, water governance, adaptive delta management, participation, multi-level governance. Besides, the articles of Sarzynski (2015) and Nieuwenhuis et al. (2019) were used for backwards snowballing, as these articles were literature reviews on the topics of participation and complexity in urban climate adaptation.

Articles were selected on basis of the following criteria. Firstly, they should be related to urban climate adaptation. Secondly, they should discuss the governance structures or participation processes in adaptation. Finally, available articles on the Participatory Value Evaluation method were selected.

Main literature review – Selection of articles

The following search words have been used to search for literature used in the literature review:

("Participat*" OR "Public participation") AND ("Information presentation" OR "Cognitive limitations" OR "Climate communication" OR ("Communication" AND "Climate adaptation") OR "Exchange of knowledge" OR "Contextual knowledge" OR "Knowledge building" OR ("Capacity" AND "Information") OR "Information provision" OR "Exchange of information" OR "Information asymmetry")

Besides, five articles were used for backwards snowballing:

Few et al. (2007); Itten (2018); Pearce et al. (2015); Sarzynski (2015); Renn (2006); Rusman (2018?)

The final selection of articles is presented in Table A.1.

Table A.1 List of articles used for the literature review

Article	Article
Afzalan et al. (2017)	Ianniello et al. (2019)
Arnstein (1969)	Jiménez et al. (2019)
Bar-Anan et al. (2006)	Jones et al. (2017)
Beierle (1999)	Marvilhas & Martins (2019)
Blackstock et al (2007)	Nerlich et al. (2010)
Bohner & Dickel (2011)	Owen et al. (2004)
Ertiö (2015)	Paschen & Ison (2014)
Evans – Cowley & Hollander (2010)	Pearce et al. (2015)
Falco & Kleinhans (2018a)	Pfeffer et al. (2013)
Falco & Kleinhans (2018b)	Renn (2006)
Genus & Coles (2005)	Rowe & Frewer (2005)
Glucker et al. (2013)	Sheppard et al. (2011)
Guimaraes et al. (2003)	Tompkins et al. (2008)
Hine et al. (2016)	Wyss & Beste (2017)

Appendix B Interview analysis

Topic guide

Below the topic guide used in the expert interviews is presented. The topic guide starts with an introduction in which the experts are informed about the consequences of participating in the interview and asked for their informed consent. Thereafter the guide consists of five topics. All topics are elaborated with some exemplary questions used to give some structure to the interviews. However, since the interviews followed an open structure based on the five topics, these questions were not strictly used in all interviews.

Introduction

- Thank the participant for his/her voluntary participation to this research
- The participant may stop at any given moment, without a given reason
- The interview is part of my master thesis research project that investigates the effects of information selection and presentation in participation in urban climate adaptation
- The goal of the interview
- The interview data will be stored securely at the TU Delft Datacentre
- Check if the participants has any questions

Double check if the participant is ok with recording the interview. (NOTE: if yes, make sure you also record this consent on the recording itself)

Urban Climate Adaptation in Rotterdam

- What strategy is followed?
- On which scale?
- Which actors are involved?

Participation in Rotterdam

- What is the general philosophy on participation of the Municipality of Rotterdam?

Participation and Urban Climate Adaptation

- Why using participation in Urban Climate Adaptation?
- What does the process of participation look like and why?
- What focus is chosen in participation? Bottom-up, co-creation, government-led?

Participants

- What kind of people participate?
- What reasons do people have to participate?

The role of information and knowledge

- How to communicate on a complex subject as Urban Climate Adaptation?
- What goals are achieved with communication? (To inform, to educate, to enable?)
- What communication strategies are used? What are (dis)advantages?
- How is information selected and presented?

Participation and the policy making process or decision-making process

- To what extent does participation fit in the policy making process/decision making process?
- What are bottlenecks?

- What is the starting point: the participation process or the policy making process?

Code list

Below the code list used to code the transcribed expert interviews are listed. Since the interviews were held in Dutch, the codes used were also in Dutch. On the right the English translation of the codes is presented.

Dutch

Aanleiding
 Aanpak – klimaatadaptatie
 Aanpak – participatie
 Communicatie
 Context
 Doelstelling
 Effectiviteit
 Facilitator
 Governance
 Integraal
 Kennis
 Opgave
 Organisatie
 Participanten
 Schaal
 Toegankelijkheid
 Uitgangspunt

English

Motivation
 Approach – climate adaptation
 Approach – participation
 Communication
 Context
 Objectives
 Effectiveness
 Facilitator
 Governance
 Interrelatedness
 Knowledge
 Problem/Issue
 Organisation
 Participants
 Scale
 Accessibility
 Starting point

Appendix C Document analysis

Selection of documents

The selection of documents used in the documents analysis is presented in Table C.1. One of the interviewees working at the municipality addressed the documents of the Weatherwise program. And these documents referred to the Adaptation strategy of Rotterdam. The Adaptation strategy was not included in this analysis, since it is dated in 2013 and most of the content is adopted in the Strategie Resilient Rotterdam and the Weatherwise documents. The other documents were found using google by using the following search words: participation OR/AND (municipality of) Rotterdam OR/AND (urban) climate adaptation. Document were selected using the following selection criteria. The documents should mention the themes represented by the search words. Moreover, the documents should represent the current policy of the municipality on UCA and participation. As mentioned in the main text, the selection of the documents was based on the purpose of the documents (inform about the policy direction of the municipality), the audience it is directed to (both policy makers or citizens) and the context it was written in (UCA and participation). All documents are official municipal documents and can therefore be considered as reliable and valid representations of the approach on UCA and participation taken in the municipality.

Table C.1 Documents used in the documents analysis

Document	Author	Date	Content
Strategie Resilient Rotterdam – consultatiedocument	Municipality of Rotterdam	n.d.	Broad strategy on making the city more resilient. Covers UCA but also other subjects such as infrastructure and digitalization.
Rotterdams Weerwoord – urgentiedocument	Mayor and Executive Board Municipality of Rotterdam	2019	Discusses the main features of the Weatherwise program. It explains the approach on UCA of the municipality.
Van stenige straten naar groene oases: strategie wijkaanpak – Rotterdams Weerwoord	Weatherwise Team	2019	Discusses the participatory approach on neighbourhood level which is a component of the Weatherwise program.
Reysgids Reyerood+	Reyerood+ Team	2019	Discusses the participatory approach on the transitions in the neighbourhood Reyerood. Shows examples of current projects in the neighbourhood.
De betrokken stad	Mayor and Executive Board Municipality of Rotterdam	2019	Policy letter by the responsible Alderman on participation in general in the municipality of Rotterdam.
De betrokken stad – programma 2019-2020	Mayor and Executive Board Municipality of Rotterdam	2019	Elaboration on the policy letter. A program to fulfil the policy in the period 2019-2020.
Website participatie Rotterdam (https://www.rotterdam.nl/wonen-leven/participatie/)	Municipality of Rotterdam	n.d.	Website that shows all participation methods used in the Municipality of Rotterdam.

Code list

Below the code list used to code the selected documents are listed. Since the documents were written in Dutch, the codes used were also in Dutch. On the right the English translation of the codes is presented.

Dutch

Aanpak – klimaatadaptatie
Aanpak – participatie
Communicatie
Doelgroep
Doelstelling
Governance
Instrumenten
Integraal
Kennis
Opgave
Schaal
Strategie
Uitgangspunt
Vorm

English

Approach – climate adaptation
Approach – participation
Communication
Target group/Audience
Objectives
Governance
Instruments
Interrelatedness
Knowledge
Problem/Issue
Scale
Strategy
Starting point
Mode/Expression

Appendix D Evaluation by policy makers

Topic guide

Below the topic guide used in the evaluation by policy makers working for the Reyeroord+ team is presented. The topic guide starts with an introduction in which the policy makers are informed about the consequences of participating in the evaluation and asked for their informed consent. Thereafter the guide consists of five topics. All topics are elaborated with some exemplary questions used to give some structure to the evaluation. However, since the evaluation followed an open structure based on the five topics, these questions were not strictly used in the evaluation.

Introduction

- Thank the participant for his/her voluntary participation to this research
- The participant may stop at any given moment, without a given reason
- The interview is part of my master thesis research project that investigates the effects of information selection and presentation in participation in urban climate adaptation
- The goal of the evaluation
- The interview data will be stored securely at the TU Delft Datacentre
- Check if the participants has any questions

Double check if the participant is ok with recording the interview.

(NOTE: if yes, make sure you also record this consent on the recording itself)

Facilitator/usefulness

- What are the objectives behind participation in Reyeroord?
- What is the role of the Reyeroord+ team in the participation process?

PVE method

- What do you think of the method (length, difficulty, output)?
- How does it fit in your organization?
- In what steps of the policy-making process does PVE fit?
- To what extent do you want to use PVE?

Information provision

- What do you think of the information selection in this PVE-survey and the treatments? Was it complete, correct, specific, relevant, open and transparent, attainable?
- What do you think of the information presentation in this PVE-survey and the treatments?
- How do you evaluate the disclaimers?

Participants/meaningfulness

- What will be the consequences of this PVE-survey?
- What is the influence on the policy-making process?

General

- Do you have improvements?
- What do you miss?
- What reactions of citizens do you have received?

Code list

Below the code list used to code the evaluation by policy makers are listed. Since the evaluation was held in Dutch, the codes used were also in Dutch. On the right the English translation of the codes is presented.

Dutch

Consequentialisme
Doelstelling
Informatie presentatie
Informatie selectie
Informatieverwerking
Input bewoners
Kennisniveau
Betekenisvolle participatie
Participatie
PWE methode
Reactie bewoners
Representativiteit
Reyeroord
Terugkoppeling
Transparantie
Visualisaties

English

Consequentialism
Objective
Information presentation
Information selection
Processing of information
Input citizens
Knowledge level
Meaningful participation
Participation
PVE method
Reaction citizens
Representativity
Reyeroord
Feedback
Transparency
Visualisations

Appendix E PVE design

In this Appendix the context of the PVE-survey is presented. This consists of the introduction text, the instruction text, the five policy option texts, a table with the attributes, attribute levels and the calculation of the costs of the policy options, a transcription of the instruction video, the help page text, and the closing page text. The basic texts are presented in black. In red you find the information manipulations. Except for the instruction, help, and video texts all texts are showed for both treatments. Underneath the policy option texts of treatment 2 the visualisations are presented.

Introduction text

Treatment I

Herinrichting groenstrook in Reyeroord

Fijn dat u mee wilt doen aan het onderzoek naar de inrichting van de groenstrook gelegen in Reyeroord! In 2021 wordt daar een waterberging gerealiseerd en daarbij wordt de hele groenstrook heringericht. Dit onderzoek gaat over de wensen voor de inrichting van bewoners. U kunt alleen deelnemen aan de raadpleging via laptop of desktop. Er is geen mobiele versie.

In de komende jaren zal het riool in Reyeroord vervangen worden door een gescheiden rioolstelsel. Het water dat op straat en op daken valt zal dan niet langer samen met het vuile water uit huis in één riool terecht komen, maar wordt afgevoerd naar het oppervlaktewater. **Het water infiltreert in een zogenaamd DIT-riool, waardoor het naar de waterberging wordt geleid. Het water dat op dit moment op straat blijft liggen, wordt dus verplaatst naar de groenstrook. Het opgevangen water zorgt er ook voor dat er in tijden van droogte meer water voorhanden is.**

Maatregelen zoals de waterberging zijn nodig omdat het klimaat verandert. Door klimaatverandering neemt de kans op overlast en schade door hevige neerslag, hitte, droogte en overstromingen toe. Dat levert in Rotterdam risico's op voor de economie, veiligheid en gezondheid. Er kan schade optreden aan gebouwen en infrastructuur door bijvoorbeeld wateroverlast, maar ook door lage grondwaterstanden als gevolg van langdurige droogte.

Met deze gevolgen van klimaatverandering in het achterhoofd, zal de gemeente Rotterdam de inrichting van de wijk Reyeroord de komende jaren aanpakken. De hevige neerslag vraagt om meer waterbergingscapaciteit. Water dat op 6,5 hectare straat valt zal in een nieuwe waterberging van 2000 m³ opgevangen worden. Die waterberging wordt in de groenstrook tussen Bredenoord en Nieuwenoord aangelegd. De waterberging gaat wateroverlast nu en in de toekomst tegen. Daarnaast is er de mogelijkheid om de groenstrook zo in te richten dat de kwaliteit van de leefomgeving in de wijk omhoog gaat, bijvoorbeeld door mogelijkheden voor recreatie, speelmogelijkheden of natuur aan te leggen.

Ten slotte, kan er ook iets aan de bodemdaling in Reyeroord gedaan worden. De groenstrook kan opgehoogd worden tot het niveau waarop het maaiveld lag toen Reyeroord gebouwd werd. **Dit wordt ook wel het uitgiftepeil genoemd. De groenstrook zou 30 cm opgehoogd kunnen worden.** Het ophogen van de groenstrook zorgt voor een hoogteverschil met de omliggende grond en tuinen. **Daardoor ontstaat de mogelijkheid dat de tuinen meer wateroverlast zullen hebben, tenzij de tuinen opgehoogd**

worden. De gemeente kijkt ook nog naar andere manieren om de bodemdaling tegen te gaan. Ophogen is dus één van de mogelijkheden.

Treatment II

Herinrichting groenstrook in Reyeroord

Fijn dat u mee wilt doen aan het onderzoek naar de inrichting van de groenstrook gelegen in Reyeroord! In 2021 wordt daar een waterberging gerealiseerd en daarbij wordt de hele groenstrook heringericht. Dit onderzoek gaat over de wensen voor de inrichting van bewoners. U kunt alleen deelnemen aan de raadpleging via laptop of desktop. Er is geen mobiele versie.

In de komende jaren zal het riool in Reyeroord vervangen worden door een gescheiden rioolstelsel. Het water dat op straat en op daken zal vanaf dan deels in een nieuwe waterberging in de wijk opgevangen worden. De gemeente wil de waterberging van 2000 m³ aanleggen in de groenstrook tussen Bredenoord en Nieuwenoord. **Het gaat dan om de groenstrook die van Kouwenoord tot aan de Zevenbergsedijk loopt.** Water dat op straat valt, zal voor een gedeelte in de waterberging worden opgevangen.

De waterberging gaat wateroverlast nu en in de toekomst tegen. Daarnaast is er de mogelijkheid om de groenstrook zo in te richten dat de kwaliteit van de leefomgeving in de wijk omhoog gaat, bijvoorbeeld door mogelijkheden voor recreatie, speelmogelijkheden of natuur aan te leggen.

Ten slotte, kan er ook iets aan de bodemdaling in Reyeroord gedaan worden. De groenstrook kan opgehoogd worden tot het niveau waarop het maaiveld lag toen Reyeroord gebouwd werd. Het ophogen van de groenstrook zorgt voor een hoogteverschil met de omliggende grond en tuinen. Daardoor ontstaat de mogelijkheid dat de tuinen meer wateroverlast zullen hebben. **Er kunnen bijvoorbeeld plassen in de tuin ontstaan, maar dat kan worden tegengegaan als de tuinen ook opgehoogd worden.** De gemeente kijkt ook nog naar andere manieren om de bodemdaling tegen te gaan. Ophogen is dus één van de mogelijkheden.

Instruction text

Wat gaat u doen?

In dit onderzoek passen wij een nieuw ontwikkelde methode voor burgerparticipatie toe: Participatieve Waarde Evaluatie. Met uw projectselectie en die van andere deelnemers kunnen wij de waarde van de verschillende projecten vaststellen. Er zijn in dit onderzoek geen goede of foute antwoorden, het gaat namelijk om uw eigen voorkeuren.

Instructies

- Het onderzoek bestaat uit 2 onderdelen: (1) het maken van een selectie van verschillende opties voor de groenstrook; (2) vragen over uw ervaring bij de selectie van de projecten.
- Wij vragen u straks 100 punten te verdelen over 5 opties.
- U geeft de meeste punten aan de optie die u het meest aanspreekt, de minste punten aan de optie die u het minst aanspreekt.

- Bij elke optie staat een begeleidende tekst en een tabel met effecten. Deze effecten kunt u ook vergelijken.

Spelregels

- Als u ouder bent dan 15 jaar en u woont in Reyeroord mag u meedoen.
- Uw deelname aan dit onderzoek is volledig vrijwillig en u kunt ten alle tijden stoppen met de selectie of de vragenlijst. Als u een vraag in de vragenlijst wil overslaan is dat mogelijk.
- Er zijn in dit onderzoek geen goede of foute antwoorden, het gaat namelijk om uw eigen voorkeuren.
- Het onderzoek duurt ongeveer 20 minuten.
- Uw antwoorden worden veilig bewaard door de TU Delft, op een beveiligde server. Het onderzoek is goedgekeurd door de ethische commissie van de TU Delft.
- **Let op! De afbeeldingen die u bij de opties ziet zijn impressies en geven een indruk over hoe de optie er uit zou kunnen zien. (Disclaimer included in treatment 2)**
- De prijzen en andere cijfers die u te zien krijgt zijn voorbeelden. Het zijn schattingen die aangeven wat het ongeveer zal zijn.

Onder de deelnemers worden 4 prijzen van €25,- verloot. Om aan de loting mee te doen, kunt u aan het einde van de vragenlijst uw emailadres invullen. Uw emailadres wordt alleen voor de loting en de communicatie met de winnaars gebruikt. Na de loting wordt uw emailadres verwijderd uit ons systeem.

Dit onderzoek wordt gedaan in het kader van het afstudeeronderzoek van Sem Nouws, student aan de Technische Universiteit in Delft. De gemeente Rotterdam was nauw betrokken bij het opstellen van het onderzoek en de resultaten zullen met hen gedeeld worden. Voor meer informatie over het onderzoek en voor het doorgeven van suggesties en/of opmerkingen kunt u mailen naar s.j.j.nouws@student.tudelft.nl. Alvast hartelijk dank voor uw deelname!

Policy option texts

Option 1: Alleen doen wat noodzakelijk is

Treatment I

In deze optie wordt een waterberging met een capaciteit van 2000 m³ gerealiseerd. De waterberging krijgt de vorm van een singel met rechte oevers.

De groenstrook wordt tot een basisniveau opgeknapt en krijgt dezelfde uitstraling als in de huidige situatie.

Binnen deze optie wordt de vrijgekomen grond van de waterberging niet gebruikt om de groenstrook op te hogen **naar uitgiftepeil**. Daardoor zullen er geen hoogteverschillen met de omliggende percelen ontstaan. Er wordt in dit geval niets gedaan aan de bodemdaling waar Reyeroord mee te maken heeft.

Deze optie heeft de laagste kosten. Het maken van een waterberging in de vorm van een singel is het goedkoopst. Daarnaast wordt de groenstrook tot basisniveau opgeknapt, waardoor de kosten laag blijven. Ten slotte, hoeft er geen geld besteed te worden aan het ophogen van de groenstrook.

Door het aanleggen van de waterberging zal wateroverlast in de wijk afnemen en voorkomen worden. In deze optie wordt er niets gedaan aan het voorkomen van andere gevolgen van klimaatverandering zoals droogte en overlast door hitte.

Onderstaande cijfers zijn een indicatie.

Treatment II

In deze optie wordt een waterberging met een capaciteit van 2000 m³ gerealiseerd. De waterberging krijgt de vorm van een singel met rechte oevers, **vergelijkbaar met het water tussen Hordijkerveld en Reyeroord**.

De groenstrook wordt tot een basisniveau opgeknapt en krijgt dezelfde uitstraling als in de huidige situatie.

Binnen deze optie wordt de vrijgekomen grond van de waterberging niet gebruikt om de groenstrook op te hogen. Daardoor zullen er geen hoogteverschillen met de omliggende percelen ontstaan. Er wordt in dit geval niets gedaan aan de bodemdaling waar Reyeroord mee te maken heeft.

Deze optie heeft de laagste kosten. Het maken van een waterberging in de vorm van een singel is het goedkoopst. Daarnaast wordt de groenstrook tot basisniveau opgeknapt, waardoor de kosten laag blijven. Ten slotte, hoeft er geen geld besteed te worden aan het ophogen van de groenstrook.

Door het aanleggen van de waterberging zal wateroverlast in de wijk afnemen en voorkomen worden. In deze optie wordt er niets gedaan aan het voorkomen van andere gevolgen van klimaatverandering zoals droogte en overlast door hitte.

Onderstaande cijfers zijn een indicatie.



Figure E.1 Visualisation option 1

Option 2: Van groenstrook tot recreatiegebied

Treatment I

In deze optie wordt een waterbergingscapaciteit van 2000 m³ gerealiseerd door natte zones met droge zones af te wisselen in de groenstrook. Over de lengte van de groenstrook worden verschillende plassen gegraven met natuurlijke vormen. Ze zijn schuin en zullen geleidelijk aflopen. **De groenstrook is ongeveer 37.000 m² groot, waarvan ongeveer 4000 m² waterberging wordt.**

De natuurlijkere waterberging geeft meer ruimte om andere voorzieningen in de groenstrook te realiseren. De groenstrook wordt een park waarin buurtbewoners kunnen recreëren. **Dat betekent ook dat er twee grote speelplekken en verschillende samenkomstplekken worden gerealiseerd.**

De kosten van deze optie hoger zijn dan van optie 1. De natuurlijke waterberging, de speelplekken en het maken van een recreatiegebied zorgen voor extra kosten. Door het aanleggen van de waterberging zal wateroverlast in de wijk afnemen en voorkomen worden. Doordat er meer groen bijkomt zal de variatie in biodiversiteit toenemen en zal het park voor meer verkoeling zorgen. **De toename van groen in de strook zorgt voor meer verdamping en daardoor voor meer verkoeling.**

De vrijgekomen grond van de waterberging wordt gebruikt om de groenstrook op te hogen **naar uitgiftepeil**. Hiermee wordt bodemdaling in de groenstrook tegengegaan. Dat betekent wel dat er hoogteverschillen zullen ontstaan met percelen rondom de groenstrook. Het ophogen van de groenstrook zal tot hogere kosten leiden, vanwege het transport van de grond, de grondkosten en de uitvoering. Bewoners rondom de groenstrook kunnen ervoor kiezen om hun tuin ook op te hogen, de kosten moeten ze zelf betalen.

Onderstaande cijfers zijn een indicatie.

Treatment II

In deze optie wordt een waterbergingscapaciteit van 2000 m³ gerealiseerd door natte zones met droge zones af te wisselen in de groenstrook. Over de lengte van de groenstrook worden verschillende plassen gegraven met natuurlijke vormen. Ze zijn schuin en zullen geleidelijk aflopen. Ze zijn schuin en zullen geleidelijk aflopen.

De natuurlijkere waterberging geeft meer ruimte om andere voorzieningen in de groenstrook te realiseren. **Bewoners kunnen een wandeling door het park maken, kinderen kunnen er spelen in de twee grote speelplekken en er zijn verschillende samenkomstplekken.**

De kosten van deze optie hoger zijn dan van optie 1. De natuurlijke waterberging, de speelplekken en het maken van een recreatiegebied zorgen voor extra kosten. Door het aanleggen van de waterberging zal wateroverlast in de wijk afnemen en voorkomen worden. Doordat er meer groen bijkomt zal de variatie in biodiversiteit toenemen en zal het park voor meer verkoeling zorgen. **Het vergroenen van de strook zorgt voor plekken met schaduw die verkoeling bieden op dagen met zeer hoge temperaturen.**

De vrijgekomen grond van de waterberging wordt gebruikt om de groenstrook op te hogen en bodemdaling tegen te gaan. Dat betekent wel dat er hoogteverschillen zullen ontstaan met percelen

rondom de groenstrook. Het ophogen van de groenstrook zal tot hogere kosten leiden, vanwege het transport van de grond, de grondkosten en de uitvoering. Bewoners rondom de groenstrook kunnen ervoor kiezen om hun tuin ook op te hogen, de kosten moeten ze zelf betalen.

Onderstaande cijfers zijn een indicatie.



Figure E.2 Visualisation option 2

Option 3: Verbetering van de leefomgeving dicht bij huis

Treatment I

In deze optie krijgt de waterberging dezelfde vorm als in optie 2. In de groenstrook wordt 1000 m³ waterberging gerealiseerd. De overige 1000 m³ moet in de binnentuinen opgevangen worden.

Doordat de binnentuinen hiervoor op de schop moeten, zal er ook de mogelijkheid komen om de binnentuinen te vergroenen en/of daar speelmogelijkheden te maken. De omwonenden van de binnentuinen kunnen aangeven hoe zij de binnentuin er het liefst uit willen laten zien. **In de binnentuinen zal de structuur van de grond zo worden aangepast dat het water beter infiltreert en zullen ook waterbassins aangebracht worden.**

De groenstrook zal tot basisniveau opgeknapt worden en zal er hetzelfde uitzien als de huidige groenstrook. Daar staat tegenover dat de binnentuinen een aantrekkelijker uitzicht zullen worden voor omwonenden en dat speelgelegenheden dicht bij huis zijn.

De kosten van deze optie zullen hoger zijn omdat werkzaamheden op verschillende plekken plaatsvinden (in de groenstrook én de binnentuinen). Ook in deze optie wordt de wateroverlast in de wijk verminderd en voorkomen. De variatie in biodiversiteit zal in de binnentuinen toenemen. Ook zal er meer verkoeling in de binnentuinen zijn.

Binnen deze optie wordt de vrijgekomen grond van de waterberging wel gebruikt om de groenstrook op te hogen **naar uitgiftepeil**. Hiermee wordt de bodemdaling in de groenstrook tegengegaan. Er zullen geen hoogteverschillen ontstaan met omliggende tuinen omdat bewoners rondom de groenstrook budget krijgen om hun tuinen op te hogen. Dat betekent wel dat de kosten van deze optie een stuk hoger liggen. Ook het ophogen van de groenstrook zorgt voor hogere kosten.

Onderstaande cijfers zijn een indicatie.

Treatment II

In deze optie krijgt de waterberging dezelfde vorm als in optie 2. In de groenstrook wordt 1000 m³ waterberging gerealiseerd. De overige 1000 m³ moet in de binnentuinen opgevangen worden.

Doordat de binnentuinen hiervoor op de schop moeten, zal er ook de mogelijkheid komen om de binnentuinen te vergroenen en/of daar speelmogelijkheden te maken. De omwonenden van de binnentuinen kunnen aangeven hoe zij de binnentuin er het liefst uit willen laten zien.

De groenstrook zal tot basisniveau opgeknapt worden en zal er hetzelfde uitzien als de huidige groenstrook. Daar staat tegenover dat de binnentuinen een aantrekkelijker uitzicht zullen worden voor omwonenden en dat speelgelegenheden dicht bij huis zijn.

De kosten van deze optie zullen hoger zijn omdat werkzaamheden op verschillende plekken plaatsvinden (in de groenstrook én de binnentuinen). De variatie in biodiversiteit zal in de binnentuinen toenemen. **Dat betekent dat er meer verschillende bloemen en planten aangeplant worden. Daarmee wordt de groenstrook aantrekkelijker voor allerlei insecten en dieren.** Ook zal er meer verkoeling in de binnentuinen zijn.

Binnen deze optie wordt de vrijgekomen grond van de waterberging wel gebruikt om de groenstrook op te hogen. Hiermee wordt de bodemdaling in de groenstrook tegengegaan. Er zullen geen hoogteverschillen ontstaan met omliggende tuinen omdat bewoners rondom de groenstrook budget krijgen om hun tuinen op te hogen. Dat betekent wel dat de kosten van deze optie een stuk hoger liggen. Ook het ophogen van de groenstrook zorgt voor hogere kosten.

Onderstaande cijfers zijn een indicatie.



Figure E.3 Visualisation option 3

Option 4: Ruim baan voor natuur

Treatment I

In de groenstrook wordt 2000 m³ aan waterberging gemaakt. De waterberging krijgt natuurlijke en schuine oevers die goed zijn voor de biodiversiteit. Zoals in opties 2 en 3 zullen er verschillende poelen en plassen worden gecreëerd.

Deze optie is erop gericht om de natuur in de wijk sterk te verbeteren. In de groenstrook wordt een park aangeplant met veel verschillende soorten planten en bloemen, waar insecten en dieren goed gedijen. Het park biedt gelegenheid voor recreatie en zorgt voor verkoeling. Ook in de rest van de wijk wordt de biodiversiteit verbeterd.

De kosten voor deze optie zijn vergelijkbaar met optie 2. Er worden natuurlijke oevers aangelegd, wat duurder is dan een singel met rechte oevers. Ook het aanleggen van een park is duurder. Het creëren van biodiversiteit geeft weinig extra kosten. Deze optie zorgt voor het verminderen en voorkomen van wateroverlast, maar zorgt vooral voor een toename van de biodiversiteit.

Binnen deze optie wordt de vrijgekomen grond van de waterberging wel gebruikt om de groenstrook op te hogen **naar uitgiftepeil**. Hiermee wordt bodemdaling in de groenstrook tegengegaan. Dat betekent wel dat er hoogteverschillen zullen ontstaan met percelen rondom de groenstrook. Het ophogen van de groenstrook zal tot hogere kosten leiden, vanwege het transport van de grond, de grondkosten en de uitvoering. Bewoners rondom de groenstrook kunnen ervoor kiezen om hun tuin ook op te hogen, de kosten moeten ze zelf betalen.

Onderstaande cijfers zijn een indicatie.

Treatment II

In de groenstrook wordt 2000 m³ aan waterberging gemaakt. De waterberging krijgt natuurlijke en schuine oevers die goed zijn voor de biodiversiteit. Zoals in opties 2 en 3 zullen er verschillende poelen en plassen worden gecreëerd.

Deze optie is erop gericht om de natuur in de wijk sterk te verbeteren. In de groenstrook wordt een park aangeplant met veel verschillende soorten planten en bloemen, waar insecten en dieren goed gedijen. **In het voorjaar en de zomer zullen overal veel bloemen groeien en insectenhotels geven insecten een schuilplaats en voedsel.** Het park biedt gelegenheid voor recreatie en zorgt voor verkoeling. Ook in de rest van de wijk wordt de biodiversiteit verbeterd.

De kosten voor deze optie zijn vergelijkbaar met optie 2. Er worden natuurlijke oevers aangelegd, wat duurder is dan een singel met rechte oevers. Ook het aanleggen van een park is duurder. Het creëren van biodiversiteit geeft weinig extra kosten. Deze optie zorgt voor het verminderen en voorkomen van wateroverlast, maar zorgt vooral voor een toename van de biodiversiteit.

Binnen deze optie wordt de vrijgekomen grond van de waterberging wel gebruikt om de groenstrook op te hogen **naar uitgiftepeil.** Hiermee wordt bodemdaling in de groenstrook tegengegaan. Dat betekent wel dat er hoogteverschillen zullen ontstaan met percelen rondom de groenstrook. Het ophogen van de groenstrook zal tot hogere kosten leiden, vanwege het transport van de grond, de grondkosten en de uitvoering. Bewoners rondom de groenstrook kunnen ervoor kiezen om hun tuin ook op te hogen, de kosten moeten ze zelf betalen.

Onderstaande cijfers zijn een indicatie.



Figure E.4 Visualisation option 4

Option 5: Extra maatregelen voor de zekerheid

Treatment I

In deze optie wordt er meer waterbergingscapaciteit gerealiseerd. In de groenstrook worden verschillende poelen en plassen aangelegd met samen een capaciteit van 3000 m³. Daarmee is er genoeg waterberging wanneer er in de toekomst nog meer hevige regenval zou komen dan nu wordt geschat. **In de toekomst neemt het aantal dagen waarop meer dan 50 mm valt namelijk toe.**

In deze optie wordt de groenstrook een park voor recreatie waar ook veel plek is voor natuur. Deze optie zorgt dus voor genoeg waterbergingscapaciteit om wateroverlast nu en in de toekomst tegen te gaan. Daarnaast zorgt de groenstrook voor een toename in variatie in biodiversiteit en brengt het verkoeling. De kosten van deze optie worden voornamelijk hoger doordat er meer waterberging wordt aangelegd.

Binnen deze optie wordt de vrijgekomen grond van de waterberging wel gebruikt om de groenstrook op te hogen **naar uitgiftepeil**. Hiermee wordt de bodemdaling in de groenstrook tegengegaan. Er zullen geen hoogteverschillen ontstaan met omliggende tuinen omdat bewoners rondom de groenstrook budget krijgen om hun tuinen op te hogen. Dat betekent wel dat de kosten van deze optie een stuk hoger liggen. Ook het ophogen van de groenstrook zorgt voor hogere kosten.

Onderstaande cijfers zijn een indicatie.

Treatment II

In deze optie wordt er meer waterbergingscapaciteit gerealiseerd. In de groenstrook worden verschillende poelen en plassen aangelegd met samen een capaciteit van 3000 m³. Daarmee is er genoeg waterberging wanneer er in de toekomst meer hevige regenval zou komen dan nu wordt geschat.

In deze optie wordt de groenstrook een park voor recreatie waar ook veel plek is voor natuur. Deze optie zorgt dus voor genoeg waterbergingscapaciteit om wateroverlast nu en in de toekomst tegen te gaan. Daarnaast zorgt de groenstrook voor een toename in variatie in biodiversiteit en brengt het verkoeling. De kosten van deze optie worden voornamelijk hoger doordat er meer waterberging wordt aangelegd.

Binnen deze optie wordt de vrijgekomen grond van de waterberging wel gebruikt om de groenstrook op te hogen. Hiermee wordt de bodemdaling in de groenstrook tegengegaan. Er zullen geen hoogteverschillen ontstaan met omliggende tuinen omdat bewoners rondom de groenstrook budget krijgen om hun tuinen op te hogen. Dat betekent wel dat de kosten van deze optie een stuk hoger liggen. Ook het ophogen van de groenstrook zorgt voor hogere kosten.

Onderstaande cijfers zijn een indicatie.



Figure E.5 Visualisation option 5

Attributes

Table E.1 shows the attribute levels of the five policy options. Thereafter, the calculation of the costs of the options are presented.

Table E.1 Attributes and the attribute levels per policy option

Attribute	Option 1: conservative	Option 2: liberal	Option 3: family	Option 4: nature	Option 5: progressive
Costs	4,000,000	5,200,000	6,600,000	5,000,000	5,500,000
Capacity of water storage [m3]	2,000	2,000	2,000	2,000	3,000
Change in possibilities for recreation	No improvement	Big improvement	Big improvement	Small improvement	Small improvement
Change in possibilities for children to play	No improvement	Big improvement	Big improvement	Small improvement	Small improvement
Increase in variation of biodiversity	Equal	Increase	Increase	Large increase	Large increase
Water nuisance public property Reyerroord	Decrease	Decrease	Decrease	Decrease	Large decrease
Water nuisance private property (e.g. gardens)	Equal	Increase	Equal	Increase	Equal

The municipality provided an indication of five cost items. The highest costs are for the reconstruction of the green area. In this reconstruction the realization of the water storage and the park is included. The integral reconstruction of the green area in which a basic park is realized costs €3,885,000. Where the reconstruction that leads to a recreation park costs € 4,625,000. The other three categories were a large playground that costs around € 60,000, levelling up of the green area of about €300,000, and adding measures to increase biodiversity will cost around €10,000. The calculation of the costs per policy option are presented below. The total costs were rounded.

Option 1

Only integral reconstruction basic	€3,885,000
<i>Rounded total</i>	<i>€4,000,000</i>

Option 2

Integral reconstruction recreation	€4,625,000
Two large playgrounds	€12,000
Levelling up	€300,000
<i>Rounded total</i>	<i>€5,200,000</i>

Option 3

Integral reconstruction recreation	€4,625,000
Courtyards (estimated half of integral reconstruction)	€2,312,500
Levelling up	€300,000
Compensation levelling up private property	€100,000
<i>Rounded total</i>	<i>€6,600,000</i>

Option 4

Integral reconstruction recreation	€4,625,000
Levelling up	€300,000
Biodiversity	€30,000
<i>Rounded total</i>	<i>€5,000,000</i>

Option 5

Integral reconstruction recreation	€4,625,000
Levelling up	€300,000
Extra water storage	€375,000
Compensation for levelling up	€100,000
Biodiversity	€30,000
<i>Rounded total</i>	<i>€5,500,000</i>

[Text instruction video](#)

Let op! Verschillende video's voor de verschillende informatievoorzieningen

U kijkt nu naar een instructievideo waarin het gebruik van de Participatieve Waarde Evaluatie wordt uitgelegd. Wanneer deze video is afgelopen kunt u in de rechterbovenhoek op het rode kruisje klikken. U komt dat in het hoofdscherm terecht. Hier ziet u verschillende functies. Ten eerste staat in de rechterbovenhoek het maximaal aantal punten dat u kunt geven, de hoeveelheid punten die u al heeft gegeven en hoeveel punten er nog over zijn.

In het midden van het hoofdscherm ziet u de vijf projecten staan. U kunt op de rode info-knop drukken om meer informatie te krijgen. Op deze pagina ziet u een beschrijving van de optie en de verschillende

effecten van de optie. U gaat weer terug naar het hoofdscherm door op het rode kruisje in de rechterbovenhoek te klikken.

Om de opties met elkaar te vergelijken, kunt u met de schuifknoppen aangeven welke opties u wilt vergelijken. Vervolgens klikt u op het pijltje aan de linkerkant van het scherm en ziet u de effecten van de opties naast elkaar in een tabel.

Uiteindelijk maakt u een selectie van de opties. Dat doet u door punten toe te kennen aan de optie die u het beste vindt. U hoeft niet al uw punten op een optie in te zetten. Punten kent u toe door het cijfer in het witte vlak te typen of door op het plusje en minnetje te klikken. Vervolgens klikt u op het pijltje in de rechterkant van het scherm. U ziet nu een overzicht van u selectie. Wanneer u tevreden bent over de selectie kunt u op versturen klikken. Uw selectie is dan definitief en u gaat door naar de vragenlijst.

Wilt u deze video nogmaals bekijken? Klik dan op de help knop. Daar kunt u de video nogmaals bekijken.

Nogmaals hartelijk bedankt voor uw deelname aan dit onderzoek!

Help text

Klik op de knop hieronder voor een korte video met uitleg. In de video wordt uitgelegd hoe de methode gebruikt moet worden. Heb je na het zien van de video nog vragen? Stuur dan een email naar Sem Nouws (s.j.j.nouws@student.tudelft.nl).

Closing page

Treatment I

Heel erg bedankt!

Bedankt voor uw deelname aan de raadpleging over de groenstrook in Reyeroord. Uw projectselectie en antwoorden zijn opgeslagen in het systeem.

In dit onderzoek is gebruik gemaakt van een nieuwe methode voor burgerparticipatie. Daarnaast werd er onderzocht wat de invloed van informatievoorziening is op de keuzes die participanten maken en of zij zich goed in staat voelen gesteld om een keuze te maken. De manier waarop de informatie werd gepresenteerd in dit onderzoek werd gevarieerd. **U heeft technische informatie en meer informatie over klimaatadaptatie gekregen. Andere participanten kregen afbeeldingen te zien bij de verschillende opties.** Deze variatie in informatie helpt om inzicht te krijgen hoe informatie een rol speelt in participatie en hoe de gebruikte methode verbeterd kan worden.

Voor dit onderzoek is een grote groep deelnemers nodig en mocht u andere mensen in Reyeroord kennen die het leuk zouden vinden om aan deze raadpleging mee te doen, dan kunt u deze link met ze delen: raadpleginggroenstrook.live

Als u uw emailadres op de vorige pagina heeft ingevuld, doet u mee met de trekking voor één van de vier prijzen van €25,-. Uiterlijk 12 juni 2020 krijgen de winnaars persoonlijk bericht. Wij gebruiken uw emailadres alleen voor het inlichten van de winnaars van de prijs. Na de trekking wordt uw emailadres uit ons systeem verwijderd.

Mocht u nog vragen of opmerkingen hebben, dan kunt u mailen naar Sem Nouws (s.j.j.nouws@student.tudelft.nl). U kunt ook contact opnemen voor meer informatie over het onderzoek.

U kunt uw scherm nu afsluiten.

Treatment II

Heel erg bedankt!

Bedankt voor uw deelname aan de raadpleging over de groenstrook in Reyeroord. Uw projectselectie en antwoorden zijn opgeslagen in het systeem.

In dit onderzoek is gebruik gemaakt van een nieuwe methode voor burgerparticipatie. Daarnaast werd er onderzocht wat de invloed van informatievoorziening is op de keuzes die participanten maken en of zij zich goed in staat voelen gesteld om een keuze te maken. De manier waarop de informatie werd gepresenteerd in dit onderzoek werd gevarieerd. **U kreeg afbeeldingen bij de verschillende opties te zien. Andere participanten zagen die afbeeldingen niet, maar kregen meer technische informatie en informatie over klimaatadaptatie te zien.** Deze variatie in informatie helpt om inzicht te krijgen hoe informatie een rol speelt in participatie en hoe de gebruikte methode verbeterd kan worden.

Voor dit onderzoek is een grote groep deelnemers nodig en mocht u andere mensen in Reyeroord kennen die het leuk zouden vinden om aan deze raadpleging mee te doen, dan kunt u deze link met ze delen: raadpleginggroenstrook.live

Als u uw emailadres op de vorige pagina heeft ingevuld, doet u mee met de trekking voor één van de vier prijzen van €25,-. Uiterlijk 12 juni 2020 krijgen de winnaars persoonlijk bericht. Wij gebruiken uw emailadres alleen voor het inlichten van de winnaars van de prijs. Na de trekking wordt uw emailadres uit ons systeem verwijderd.

Mocht u nog vragen of opmerkingen hebben, dan kunt u mailen naar Sem Nouws (s.j.j.nouws@student.tudelft.nl). U kunt ook contact opnemen voor meer informatie over het onderzoek.

U kunt uw scherm nu afsluiten.

Appendix F Follow-up questions

Questionnaire

In this Appendix the questionnaire is shown as it was presented in the webtool.

Herinrichting groenstrook 1

Nog een paar vragen

Er volgen nu nog een aantal vragen die ons helpen de uitkomsten van de raadpleging in kaart te brengen en de methode te verbeteren.

Deze informatie vond ik het belangrijkste:

- De introductietekst
- De tekst bij de opties
- De effecten van de opties (bijv. de kosten of de wateroverlast)

Deze informatie vond ik het minst belangrijk:

- De introductietekst
- De tekst bij de opties
- De effecten van de opties (bijv. de kosten of de wateroverlast)

Ik heb informatie gekregen over klimaatverandering aan het begin van deze vragenlijst

- Ja
- Nee
- Weet ik niet meer

VOLGENDE

Figure F.1 Questions to check whether possible reported differences between treatment groups can be explained by the manipulation

Nog een paar vragen

Er volgen nu nog een aantal vragen die ons helpen de uitkomsten van de raadpleging in kaart te brengen en de methode te verbeteren

Met onderstaande stellingen kunt u de verstrekte informatie beoordelen. Met de informatie worden de introductietekst, de tekst bij de verschillende opties en de effecten van opties bedoeld.

	Geheel mee oneens	Mee oneens	Neutraal	Mee eens	Geheel mee eens
De informatie bij de verschillende opties was volledig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De verschaft informatie was relevant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De verschaft informatie was correct	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De verschaft informatie was nauwkeurig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De verschaft informatie komt op het juiste moment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De informatie was voldoende concreet en tastbaar	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In de informatie komt het perspectief van de inwoners van Rotterdam voldoende naar voren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik begreep de informatie bij de verschillende opties volledig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik begreep de noodzaak van de verschillende opties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vond de informatie betrouwbaar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wat voor informatie zou u graag hebben gehad/heeft u gemist?

Met onderstaande stellingen kunt u de manier waarop de informatie werd gepresenteerd beoordelen.

	Geheel mee oneens	Mee oneens	Neutraal	Mee eens	Geheel mee eens
De manier waarop de informatie werd gepresenteerd, sprak mij aan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vond de gepresenteerde informatie te ingewikkeld	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vond de gepresenteerde informatie te simpel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De informatie werd op een laagdrempelige manier gepresenteerd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wat kan verbeterd worden aan de manier waarop de informatie gepresenteerd wordt?

VOLGENDE

Figure F.2 Statements and questions to evaluate the quality of the information provision

Nog een paar vragen

Er volgen nu nog een aantal vragen die ons helpen de uitkomsten van de raadpleging in kaart te brengen en de methode te verbeteren.

U wordt nu gevraagd te beoordelen of u zich in staat gesteld voelt om een keuze te maken tussen de verschillende opties.

	Geheel mee oneens	Mee oneens	Neutraal	Mee eens	Geheel mee eens
Ik ben overtuigd van mijn keuzes in dit experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De verstrekte informatie stelde mij in staat om een onderbouwde keuze te maken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik kreeg voldoende informatie om een keuze te maken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deze vorm van participatie geeft mij voldoende inspraak in de inrichting van de waterberging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

U wordt nu gevraagd om de methode te beoordelen.

	Geheel mee oneens	Mee oneens	Neutraal	Mee eens	Geheel mee eens
Ik vind dit een realistisch experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind dat de gemeente deze methode zou moeten inzetten om bewoners te betrekken bij beleidskeuzes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dit experiment biedt de overheid relevante informatie bij het maken van keuzes over de waterberging en de herinrichting van de groenstrook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

VOLGENDE

Figure F.3 Statements to evaluate the empowerment by the information provision and to evaluate the PVE method

Nog een paar vragen

Er volgen nu nog een aantal vragen die ons helpen de uitkomsten van de raadpleging in kaart te brengen en de methode te verbeteren.

Kunt u aangeven in hoeverre u het eens bent met onderstaande stellingen?

	Geheel mee oneens	Mee oneens	Neutraal	Mee eens	Geheel mee eens
Ik maak me zorgen over klimaatverandering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De gemeente moet optreden tegen de gevolgen van klimaatverandering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Burgers moeten betrokken worden bij het ontwikkelen beleid voor klimaatverandering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Burgers zijn zelf verantwoordelijk om hun eigendom (bijv. huis of tuin) aan te passen aan gevolgen van klimaatverandering zoals extreme hitte en wateroverlast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik ben in mijn professionele leven bezig met klimaatverandering, klimaatadaptatie of duurzaamheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik ben bekend met het begrip 'stedelijke klimaatadaptatie'	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In Reyeroord/Rotterdam merken we de gevolgen van klimaatverandering zoals extreme hitte, wateroverlast, droogte, bodemdaling etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De effecten van klimaatverandering hebben de meeste gevolgen voor mensen zoals ik	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De effecten van klimaatverandering zullen zich pas in de toekomst voordoen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het is onzeker wat de effecten van klimaatverandering zullen zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

VOLGENDE

Figure F.4 Statements included to check for possible influences on or because of the processing of information

Nog een paar vragen

Er volgen nu nog een aantal vragen die ons helpen de uitkomsten van de raadpleging in kaart te brengen en de methode te verbeteren.

Mijn geslacht

- Vrouw
- Man
- Zeg ik liever niet

Mijn leeftijd

- 15-25 jaar
- 26-35 jaar
- 36-45 jaar
- 46-55 jaar
- 56-65 jaar
- 66-75 jaar
- 75+
- Zeg ik liever niet

Dit zijn de vier cijfers van mijn postcode

Bij de afgelopen Rotterdamse gemeenteraadsverkiezingen in 2018 heb ik op deze partij gestemd

- Leefbaar Rotterdam
- PvdA
- D66
- SP
- VVD
- CDA
- GroenLinks
- NIDA Rotterdam
- ChristenUnie-SGP
- Partij voor de Dieren
- De Broederschapspartij
- 50PLUS
- PVV
- DENK
- JEZUS LEEFT
- Stadsinitiatief Rotterdam
- U-Buntu Connected Front (UCF)
- De Nieuwe Rotterdamsche Partij
- Beweging Armoedebestrijding Rotterdam
- Jong Rotterdam
- Zeg ik liever niet

Hoogst genoten onderwijs

- Basisschool of geen diploma
- Vmbo-kader/Vmbo-basis/Mbo 1
- Vmbo-gemengd/Vmbo-t/Havo (onderbouw)/Vwo (onderbouw)
- Mbo 2/Mbo 3/Mbo 4
- Havo (bovenbouw)/Vwo (bovenbouw)
- Hbo-bachelor/Wo-bachelor
- Hbo-master/Wo-master/Doctor (PhD)
- Anders

Figure F.5 Questions on socio-demographic characteristics (1/2)

Mijn huidige situatie wordt het beste beschreven als:

- Ik heb betaald werk (tot 20 uur per week)
- Ik heb betaald werk (20 tot 35 uur per week)
- Ik heb betaald werk (35 uur per week of meer)
- Ik ben met pensioen
- Ik ben student/in opleiding
- Ik heb geen betaald werk
- Anders

Wat is het bruto jaarinkomen van uw huishouden? (Dat is uw inkomen + die van uw partner als u samenwoont. Het inkomen van thuiswonende kinderen telt niet mee.)

- Minder dan 10.000 euro
- 10.000 – 20.000 euro
- 20.000 – 30.000 euro
- 30.000-40.000 euro
- 40.000-50.000 euro
- 50.000-60.000 euro
- 60.000-70.000 euro
- 70.000-80.000 euro
- 80.000-90.000 euro
- 90.000-100.000 euro
- 100.000 euro of meer euro
- Zeg ik liever niet

Wat is uw gezinssituatie?

- Alleenstaand zonder thuiswonende kinderen
- Alleenstaand met thuiswonende kinderen
- Alleenstaand met huisgenoten
- Samenwonend/getrouwd zonder thuiswonende kinderen
- Samenwonend/getrouwd met thuiswonende kinderen
- Anders

Als u mee wilt doen met de trekking en kans wilt maken op één van de vier prijzen van €25,- kunt u hier uw emailadres achterlaten:

Wij zijn bezig deze methode van onderzoek beter te maken. Heeft u nog suggesties of opmerkingen naar aanleiding van uw ervaring vandaag?

VERSTUUR

Figure F.6 Questions on socio-demographic characteristics (2/2)

Code list motivation selection of policy options

Below the code list used to code the motivations of respondents for selecting policy options are listed. Since the motivation were in Dutch, the codes used were also in Dutch. On the right the English translation of the codes is presented.

Dutch	English
Binnentuinen	Courtyards
Bodemdaling	Subsidence
Dieren	Animals
Doelgroep	Target group/Audience
Efficiënt/doelmatig	Efficiency/effecitivity
Eigendom	Ownership
Esthetiek	Aesthetics
Kinderen	Children
Klimaatverandering	Climate change
Kosten	Costs
Locatie	Location
Luchtkwaliteit	Air quality
Meerwaarde	Added value
Natuur	Nature
Onderhoud	Maintenance
Recreatie	Recreation
Saamhorigheid	Solidarity/togetherness
Toekomst	Future
Veiligheid/overlast	Safety/nuisance
Verkoeling	Cooling
Verwaarlozing	Neglect
Welzijn	Wellbeing
Wateroverlast/waterberging	Water nuisance/water storage

Code list questionnaire

Below the code list used to code the answers to the open questions in the questionnaire are listed. Since the questionnaire was held in Dutch, the codes used were also in Dutch. On the right the English translation of the codes is presented.

Dutch	English
Disclaimer	Disclaimer
Duidelijkheid	Clarity
Evaluatie methode	Evaluation method
Facilitator	Facilitator
Gemiste informatie	Missed information
Grammatica	Grammar
Hoeveelheid	Quantity
Informatie presentatie	Information presentation
Lengte	Length
Moeilijkheid	Difficulty
Overzicht	Overview
Respondenten (andere)	Respondents (others)
Taalgebruik	Language use
Uitleg methode	Explanation method
Visualisaties	Visualisations
Voldoende (beoordeling informatievoorziening)	Sufficient (review of information provision)

Appendix G Promotion of PVE-survey

In this appendix the letter spread in the neighbourhood is presented. The letter was checked and corrected by the communication office of the Municipality of Rotterdam. Thereafter, the message in the newsletter of the Reyeroord+ program is showed.

Promotion letter spread in Reyeroord

Geef uw mening over Reyeroord!

Geachte meneer, mevrouw,

Eind volgend jaar wordt de groenstrook in Reyeroord aangepakt. Laat weten wat uw wensen zijn en vul de korte vragenlijst in.

Ik ben Sem Nouws en ik studeer op dit moment af aan de TU Delft. Voor mijn afstuderen doe ik onderzoek naar burgerparticipatie. Daarvoor maak ik gebruik van een nieuwe methode die is ontwikkeld aan de TU Delft: Participatieve Waarde Evaluatie (PWE). Ik gebruik deze methode om een beeld te krijgen van uw wensen voor de inrichting van de groenstrook tussen Bredenoord en Nieuwenoord.

Over het onderzoek

De PWE is in nauwe samenwerking met de gemeente Rotterdam opgesteld. De gemeente is steeds op zoek naar nieuwe manieren van (online) participatie. PWE is een onderdeel van deze zoektocht. Ik deel de resultaten van mijn onderzoek met de gemeente. Op deze manier kunt u uw wensen voor de groenstrook toch inbrengen aangezien de bijeenkomst van 19 maart niet door kon gaan. Voor meer informatie over de plannen van de gemeente voor de groenstrook en over participatie kunt u naar de podcast *Dromen over water* luisteren via <https://soundcloud.com/radioreyeroord/podcast-radio-reyeroord-dromen-over-water> of via deze QR-code:



Win-win

U ontvangt deze brief omdat u in de omgeving van de groenstrook woont. U kunt uw mening geven over wat er met de groenstrook moet gebeuren en u helpt mij met mijn afstudeeronderzoek. Het invullen van de vragenlijst duurt ongeveer 20 minuten. Onder de deelnemers verloten wij vier cadeaubonnen van €25,-.

Hoe werkt het?

U kun de vragenlijst invullen via internet. U vindt de vragenlijst op het volgende internetadres: raadpleginggroenstrook.live

Let op! U kunt alleen deelnemen aan de raadpleging via laptop of desktop. Er is geen mobiele versie.

Uw antwoorden worden veilig bewaard door de TU Delft, op een beveiligde server. Het onderzoek is goedgekeurd door de ethische commissie van de TU Delft.

Heeft u vragen of opmerkingen?

Mail dan gerust naar s.j.j.nouws@student.tudelft.nl.

U doet mij een groot plezier als u voor 8 juni uw mening geeft. Ik dank u alvast hartelijk voor uw tijd en medewerking.

Met vriendelijke groet,

Sem Nouws

Student Complex Systems Engineering and Management aan de TU Delft

[Message in newsletter Reyeroord+](#)

Wilt u graag meedenken over de inrichting van de groenstrook in Reyeroord? Nu is uw kans! Ik ben Sem Nouws en voor mijn afstudeeronderzoek vraag ik de inwoners in Reyeroord om hun mening over de herinrichting van de groenstrook tussen Bredenoord en Nieuwenoord te geven. Daarbij wordt een nieuwe methode van de TU Delft gebruikt. U krijgt verschillende manieren te zien waarop de groenstrook opgeknapt kan worden. Vervolgens kunt u punten verdelen over deze opties om zo aan te geven wat uw voorkeur heeft. Klik hier ([raadpleginggroenstrook.live](#)) om de mee te doen en maak kans op een leuke prijs! Meedoen kan tot 8 juni. Alvast bedankt!

Appendix H Descriptives of the dataset

Categories of political parties

Since, a lot of political parties joint the last municipal election, the political parties were divided in 5 categories to prepare the data for the analyses.

Table H.1 Categories of political parties

Categories	Political party
Left-globalist	PvdA
	GroenLinks
Left-nationalist	SP
	ChristenUnie-SGP
	Partij voor de Dieren
	50PLUS
Right-globalist	VVD
	CDA
	D66
Right-nationalist	PVV
	Leefbaar Rotterdam
Others	De Broederschapspartij
	NIDA Rotterdam
	DENK
	Jezus Leeft
	Stadsinitiatief Rotterdam
	UCF
	De Nieuwe Rotterdamse Partij
	Beweging Armoedebestrijding Rotterdam
	Jong Rotterdam

Representativeness of the samples

In this appendix, the tests for representativeness of the samples are presented. Chi-square tests were performed for the total sample and the two treatment samples. Representativeness was tested for gender, age, living situation and education level. For gender, age and living situation, data of 2019 by Dutch Statistics (CBS) were used. For education level, only data for 2014 were available. All data was available for the zip code 3079. This includes Reyeroord, but also two other neighbourhood that are assumed to have similar characteristics.

Gender

Table H.2 shows the representativeness of the samples for gender. In the population the distribution between male and female was respectively 48.2% and 51.8%. The null hypothesis is that the distribution in the samples is similar to that in the population. The significance levels of the chi-square test show that in all three samples the null hypothesis is accepted. All three samples are representative for gender.

Table H.2 Results of chi-square tests to check for representativeness on gender of the total and the two treatment samples

Total sample				Treatment 1				Treatment 2			
Descriptives				Descriptives				Descriptives			
	Observed N	Expected N	Residual		Observed N	Expected N	Residual		Observed N	Expected N	Residual
Female	18	17,1	0,9	Female	7	8,3	-1,3	Female	11	8,8	2,2
Male	15	15,9	-0,9	Male	9	7,7	1,3	Male	6	8,2	-2,2
Total	33			Total	16			Total	17		
Test Statistics				Test Statistics				Test Statistics			
Chi-Square		,103 ^a		Chi-Square		,411 ^a		Chi-Square		1,142 ^a	
df		1		df		1		df		1	
Asymp. Sig.		0,748		Asymp. Sig.		0,522		Asymp. Sig.		0,285	
a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 15,9.				a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 7,7.				a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 8,2.			

Age

Table H.3 shows the representativeness of the samples for age. The available data on age in the population used other age groups than used in this research. The categories in the population data were 15-24; 25-36 etc. In this research the categories were 15-25; 26-35; 36-45 etc. However, the categories were considered the same, since both have a range of 10 years and since the categories diverge only 1 year. With categories of 10 years no chi-square tests could be performed, since the expected frequencies were too low. The categories were transformed to categories of 20 years. This enabled to do the test for the total sample, but for the treatment samples the expected frequencies were still too low.

In the population the distribution of age was as follows: 27.3% of the population was 15-35 years, 25.5% 36-55 years and 20.1% was 56-75 years. The null hypothesis is that the distribution in the samples is similar to that in the population. The significance levels of the chi-square tests show that in all three samples the null hypothesis is accepted. However, since the tests for the treatment samples have too low expected values for more than 20% of the categories only the total sample is representative for age.

Table H.3 Results of chi-square tests to check for representativeness on age of the total and the two treatment samples

Total sample				Treatment 1				Treatment 2			
Descriptives				Descriptives				Descriptives			
	Observed N	Expected N	Residual		Observed N	Expected N	Residual		Observed N	Expected N	Residual
15-35	12	12,4	-0,4	15-35	6	6,0	0,0	15-35	6	6,4	-0,4
36-55	9	11,5	-2,5	36-55	4	5,6	-1,6	36-55	5	5,9	-0,9
56-75	12	9,1	2,9	56-75	6	4,4	1,6	56-75	6	4,7	1,3
Total	33			Total	16			Total	17		
Test Statistics				Test Statistics				Test Statistics			
Chi-Square		1,490 ^a		Chi-Square		1,024 ^a		Chi-Square		,537 ^a	
df		2		df		2		df		2	
Asymp. Sig.		0,475		Asymp. Sig.		0,599		Asymp. Sig.		0,765	
a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 9,1.				a. 1 cells (33,3%) have expected frequencies less than 5. The minimum expected cell frequency is 4,4.				a. 1 cells (33,3%) have expected frequencies less than 5. The minimum expected cell frequency is 4,7.			

Living situation

Table H.4 shows the representativeness of the samples for living situation. Categories were constructed for living situation. The category one person household includes people that are single and do not live with children at home. The category households with children includes both single living with children at home and people that live together or are married and live with children at home. Finally, the category household without children includes people that live together or are married and live without children at home and singles that live with roommates.

In the population the distribution of the categories is as follows: 44.5% of the population lives in a one person household, 33.4% of the population lives in a household with children, and 22.1% of the population lives in a household without children. The null hypothesis is that the distribution in the samples is similar to that in the population. The significance levels of the chi-square tests show that in all three samples the null hypothesis is accepted. However, since the tests for the treatment samples have too low expected values for more than 20% of the categories only the total sample is representative for living situation.

Table H.4 Results of chi-square tests to check for representativeness on living situation of the total and the two treatment samples

Total sample				Treatment 1				Treatment 2			
Descriptives				Descriptives				Descriptives			
	Observed N	Expected N	Residual		Observed N	Expected N	Residual		Observed N	Expected N	Residual
One person household	12	14,2	-2,2	One person household	7	7,1	-0,1	One person household	5	7,1	-2,1
Household with children	10	10,7	-0,7	Household with children	2	5,4	-3,4	Household with children	8	5,4	2,6
Household without children	10	7,1	2,9	Household without children	7	3,5	3,5	Household without children	3	3,5	-0,5
Total	32			Total	16			Total	16		
Test Statistics				Test Statistics				Test Statistics			
Chi-Square	1,616 ^a			Chi-Square	5,503 ^a			Chi-Square	2,022 ^a		
df	2			df	2			df	2		
Asymp. Sig.	0,446			Asymp. Sig.	0,064			Asymp. Sig.	0,364		
a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 7,1.				a. 1 cells (33,3%) have expected frequencies less than 5. The minimum expected cell frequency is 3,5.				a. 1 cells (33,3%) have expected frequencies less than 5. The minimum expected cell frequency is 3,5.			

Education level

Table H.5 shows the representativeness of the samples for education level. Categories were constructed for education level. The categories follow the low, medium and high education level as defined by Dutch Statistics.

In the population the distribution of the categories is as follows: 57% of the population completed low education, 33.4% of the population completed medium education, and 22.1% of the population completed high education. The null hypothesis is that the distribution in the samples is similar to that in the population. The significance levels of the chi-square tests show that in all three samples the null hypothesis is rejected. Besides, since the tests for all samples have too low expected values for more than 20% of the categories it can be concluded that the samples are not representative for education level.

Table H.5 Results of chi-square tests to check for representativeness on education level of the total and the two treatment samples

Total sample				Treatment 1				Treatment 2			
Descriptives				Descriptives				Descriptives			
	Observed N	Expected N	Residual		Observed N	Expected N	Residual		Observed N	Expected N	Residual
Low	3	18,8	-15,8	Low	1	9,7	-8,7	Low	2	9,1	-7,1
Medium	10	10,9	-0,9	Medium	5	5,6	-0,6	Medium	5	5,3	-0,3
High	20	3,3	16,7	High	11	1,7	9,3	High	9	1,6	7,4
Total	33			Total	17			Total	16		
Test Statistics				Test Statistics				Test Statistics			
	Education coded				Education coded				Education coded		
Chi-Square	97,873 ^a			Chi-Square	58,736 ^a			Chi-Square	39,798 ^a		
df	2			df	2			df	2		
Asymp. Sig.	0,000			Asymp. Sig.	0,000			Asymp. Sig.	0,000		
a. 1 cells (33,3%) have expected frequencies less than 5. The minimum expected cell frequency is 3,3.				a. 1 cells (33,3%) have expected frequencies less than 5. The minimum expected cell frequency is 1,7.				a. 1 cells (33,3%) have expected frequencies less than 5. The minimum expected cell frequency is 1,6.			

Appendix I Multiple regression analysis

In this appendix, the multiple regression analysis of the results of the PVE-survey are presented. The appendix starts with the coding of the categorical variables. Subsequently, the results of the independent samples t-test and the Mann-Whitney U test that test whether the differences in the scores on the processing of information attitudes can be explained by the treatments. Thereafter, the results of the multiple regression analysis are presented.

Coding

For a multiple regression analysis, all variables should be of continuous scale. Most of the socio-demographic characteristics are categorical variables. Therefore, dummy coding is applied. The income variable is assumed to be continuous, as the categories have the same range. The coding is presented in Table I.1. The attitudes related to the processing of information are measured in Likert scales which are assumed to be continuous.

Table I.1 Coding of the categorical variables for the multiple regression analysis

Variable	Categories	Coding			
Treatment	Treatment 1	1			
	Treatment 2	0			
Gender	Male	1			
	Female	0			
Age	Low (15-35)	1	0		
	Medium (36-55)	0	1		
	High (56+)	0	0		
Education	Low	1	0		
	Medium	0	1		
	High	0	0		
Income	Minder dan 10.000	0			
	10.000-20.000	1			
	20.000-30.000	2			
	30.000-40.000	3			
	40.000-50.000	4			
	50.000-60.000	5			
	60.000-70.000	6			
	70.000-80.000	7			
	80.000-90.000	8			
	90.000-100.000	9			
	100.000 of meer	10			
Work situation	Paid work	1	0	0	0
	Retired	0	1	0	0
	Student	0	0	1	0
	No work	0	0	0	1
	Other	0	0	0	0
Living situation	One person	1	0	0	
	Children	0	1	0	
	No children	0	0	1	
	Other	0	0	0	
Political party	Left-globalist	1	0	0	0
	Left-nationalist	0	1	0	0
	Right-globalist	0	0	1	0
	Right-nationalist	0	0	0	1
	Other	0	0	0	0

Independent samples t-test and Mann-Whitney U test - processing of information statements

Both treatment samples were asked to score the statements related to the processing of information. These attitudes are dependent variables in the multiple regression analysis, which enables to study whether these attitudes influence the allocation of points to policy options. However, the attitudes were asked after the PVE-survey and can therefore be biased by the survey. Therefore, independent samples t-tests were performed to check whether the treatments resulted in differences in the attitudes. The results are showed in Table I.2. For all attitudes the significance level is more than 0.05, which means that the differences in attitudes cannot be explained by the treatments.

Table I.2 Results of the independent samples t-test on the attitudes related to the processing of information

		Number	Mean	Std. Dev.	Difference	T	P (2-tailed)
Worried	Treatment 1	18	3,72	0,895	0,859	0,397	0,310
	Treatment 2	17	3,41	1,228			
Municipality	Treatment 1	18	4,06	0,639	1,185	0,247	0,350
	Treatment 2	17	3,71	1,047			
Design	Treatment 1	18	4,28	0,575	2,024	0,051	0,590
	Treatment 2	16	3,69	1,078			
Responsible	Treatment 1	18	3,56	1,247	0,226	0,822	0,085
	Treatment 2	17	3,47	0,943			
Knowledge 1	Treatment 1	18	2,78	1,517	0,822	0,417	0,366
	Treatment 2	17	2,41	1,064			
Knowledge 2	Treatment 1	18	2,83	1,339	0,641	0,526	0,271
	Treatment 2	16	2,56	1,094			
Geographic	Treatment 1	18	3,50	1,150	-0,859	0,397	-0,324
	Treatment 2	17	3,82	1,074			
Social	Treatment 1	18	2,78	0,943	0,913	0,368	0,278
	Treatment 2	16	2,50	0,816			
Temporal	Treatment 1	18	2,83	1,200	0,739	0,465	0,271
	Treatment 2	16	2,56	0,892			
Uncertainty	Treatment 1	18	3,61	1,243	1,526	0,137	0,611
	Treatment 2	17	3,00	1,118			

However, since both samples are smaller than 30 respondents, normality of the attitudes within the treatments cannot be assumed. Tests of normality were performed, the results are presented in Table I.3. For each attitude, the null-hypothesis is that the scores on the Likert scales are normally distributed over the treatment samples. It is observed that the null hypothesis is rejected for a majority of the attitudes as the significance level is mostly lower than 0.05 in both the Kolmogorov-Smirnov and Shapiro-Wilk tests. Therefore, the non-parametric equivalent of the independent samples t-test was performed, the Mann-Whitney U test. The results of these tests are presented in Table I.4. Again, for all attitudes the significance level is more than 0.05, which means that the differences in attitudes cannot be explained by the treatments.

Table I.3 Tests of normality of the attitudes related to the processing of information on both treatments

Tests of Normality							
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Worried	Treatment 1	0,289	18	0,000	0,866	18	0,015
	Treatment 2	0,218	14	0,071	0,907	14	0,142
Municipality	Treatment 1	0,312	18	0,000	0,789	18	0,001
	Treatment 2	0,205	14	0,115	0,867	14	0,038
Design	Treatment 1	0,352	18	0,000	0,741	18	0,000
	Treatment 2	0,344	14	0,000	0,815	14	0,008
Responsibl	Treatment 1	0,195	18	0,069	0,898	18	0,054
	Treatment 2	0,306	14	0,001	0,844	14	0,018
Knowledge	Treatment 1	0,213	18	0,031	0,861	18	0,013
	Treatment 2	0,204	14	0,118	0,908	14	0,148
Knowledge	Treatment 1	0,289	18	0,000	0,858	18	0,012
	Treatment 2	0,261	14	0,011	0,902	14	0,120
Geographic	Treatment 1	0,335	18	0,000	0,802	18	0,002
	Treatment 2	0,214	14	0,080	0,836	14	0,014
Social	Treatment 1	0,260	18	0,002	0,875	18	0,021
	Treatment 2	0,249	14	0,019	0,883	14	0,065
Temporal	Treatment 1	0,256	18	0,003	0,878	18	0,024
	Treatment 2	0,300	14	0,001	0,845	14	0,019
Uncertainty	Treatment 1	0,234	18	0,010	0,886	18	0,033
	Treatment 2	0,302	14	0,001	0,789	14	0,004

a. Lilliefors Significance Correction

Table I.4 Results of the Mann-Whitney U tests on the attitudes related to the processing of information

		N	Mean Rank	Sum of Ranks	Mann-Whitney U	Asymp. Sig. (2-tailed)	Exact Sig. [2*(1-tailed Sig.)]
Worried	Treatment 1	18	19,08	343,50	133,500	0,497	,525 ^b
	Treatment 2	17	16,85	286,50			
Municipality	Treatment 1	18	19,61	353,00	124,000	0,301	,351 ^b
	Treatment 2	17	16,29	277,00			
Design	Treatment 1	18	20,03	360,50	98,500	0,080	,117 ^b
	Treatment 2	16	14,66	234,50			
Responsible	Treatment 1	18	18,61	335,00	142,000	0,707	,732 ^b
	Treatment 2	17	17,35	295,00			
Knowledge 1	Treatment 1	18	19,17	345,00	132,000	0,476	,503 ^b
	Treatment 2	17	16,76	285,00			
Knowledge 2	Treatment 1	18	18,19	327,50	131,500	0,650	,670 ^b
	Treatment 2	16	16,72	267,50			
Geographic	Treatment 1	18	16,58	298,50	127,500	0,368	,405 ^b
	Treatment 2	17	19,50	331,50			
Social	Treatment 1	18	18,94	341,00	118,000	0,337	,384 ^b
	Treatment 2	16	15,88	254,00			
Temporal	Treatment 1	18	18,44	332,00	127,000	0,534	,574 ^b
	Treatment 2	16	16,44	263,00			
Uncertainty	Treatment 1	18	20,53	369,50	107,500	0,120	,134 ^b
	Treatment 2	17	15,32	260,50			

Multiple regression analysis

The multiple regression analysis was performed in four iterations. Each iteration deals differently with the missing values which were mostly found on the variables income and political party voted for. In each iteration, a model is estimated for each of the policy options. The model summary, the results of an ANOVA test and the coefficients are presented for each option in each iteration. The ANOVA test indicates whether the estimated model suffers from chance capitalization. When the significance is below 0.05 the model is a better estimation than no model or the previous model. In the coefficients matrices, the collinearity statistics are presented. These statistics test the multicollinearity of the estimated models. There is no problematic multicollinearity if the tolerance is higher than 0.10 and if the VIF is lower than 10.

Iteration 1

In iteration 1 the stepwise method was used and all variables were included in the analysis. Missing values were dealt with by listwise deletion. In iteration 1 coefficients for option 1, 3 and 5 were estimated. The results are shown in Tables I.5 up to and including I.13.

Option 1

Table I.5 Model summary iteration 1 for option 1

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,828 ^a	0,686	0,659	10,282
a. Predictors: (Constant), Geographic				

Table I.6 Result of the ANOVA test iteration 1 for option 1

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2767,021	1	2767,021	26,172	,000 ^b
	Residual	1268,693	12	105,724		
	Total	4035,714	13			
a. Dependent Variable: project_369						
b. Predictors: (Constant), Geographic						

Table I.7 Estimated coefficients iteration 1 for option 1

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	50,122	7,916		6,332	0,000		
	Geographic	-10,851	2,121	-0,828	-5,116	0,000	1,000	1,000
a. Dependent Variable: project_369								

Option 3

Table I.8 Model summary iteration 1 for option 3

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,668 ^a	0,446	0,399	10,732
a. Predictors: (Constant), Uncertainty				

Table I.9 Result of the ANOVA test iteration 1 for option 3

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1110,857	1	1110,857	9,646	,009 ^b
	Residual	1382,000	12	115,167		
	Total	2492,857	13			
a. Dependent Variable: project_371						
b. Predictors: (Constant), Uncertainty						

Table I.10 Estimated coefficients iteration 1 for option 3

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	35,400	8,450		4,189	0,001		
	Uncertainty	-7,200	2,318	-0,668	-3,106	0,009	1,000	1,000
a. Dependent Variable: project_371								

Option 5

Table I.11 Model summary iteration 1 for option 5

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,564 ^a	0,318	0,261	19,365
a. Predictors: (Constant), Right_nationalist				

Table I.12 Result of the ANOVA test iteration 1 for option 5

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2100,000	1	2100,000	5,600	,036 ^b
	Residual	4500,000	12	375,000		
	Total	6600,000	13			
a. Dependent Variable: project_373						
b. Predictors: (Constant), Right_nationalist						

Table I.13 Estimated coefficients iteration 1 for option 5

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	35,000	5,590		6,261	0,000		
	Right_nationalist	-35,000	14,790	-0,564	-2,366	0,036	1,000	1,000
a. Dependent Variable: project_373								

Iteration 2

In iteration 2 the stepwise method was used and all variables except for income and political party voted for were included in the analysis. Missing values were dealt with by listwise deletion. In iteration 2 coefficients for option 1, 2, 4 and 5 were estimated. The results are shown in Tables I.14 up to and including I.25.

Option 1

Table I.14 Model summary iteration 2 for option 1

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,552 ^a	0,304	0,277	17,380
a. Predictors: (Constant), Temporal				

Table I.15 Result of the ANOVA test iteration 2 for option 1

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3306,032	1	3306,032	10,945	,003 ^b
	Residual	7551,375	25	302,055		
	Total	10857,407	26			
a. Dependent Variable: project_369						
b. Predictors: (Constant), Temporal						

Table I.16 Estimated coefficients iteration 2 for option 1

Coefficients ^a								
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B		Beta			Tolerance	VIF
1	(Constant)	-14,322	8,952		-1,600	0,122		
	Temporal	10,446	3,158	0,552	3,308	0,003	1,000	1,000
a. Dependent Variable: project_369								

Option 2

Table I.17 Model summary iteration 2 for option 2

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,595 ^a	0,354	0,329	17,534
a. Predictors: (Constant), Municipality				

Table I.18 Result of the ANOVA test iteration 2 for option 2

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4219,047	1	4219,047	13,723	,001 ^b
	Residual	7685,916	25	307,437		
	Total	11904,963	26			
a. Dependent Variable: project_370						
b. Predictors: (Constant), Municipality						

Table I.19 Estimated coefficients iteration 2 for option 2

Coefficients ^a								
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B		Beta			Tolerance	VIF
1	(Constant)	70,756	15,698		4,507	0,000		
	Municipality	-14,744	3,980	-0,595	-3,704	0,001	1,000	1,000

a. Dependent Variable: project_370

Option 4

Table I.20 Model summary iteration 2 for option 4

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,468 ^a	0,219	0,187	19,544

a. Predictors: (Constant), Geographic

Table I.21 Result of the ANOVA test iteration 2 for option 4

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2671,546	1	2671,546	6,994	,014 ^b
	Residual	9548,973	25	381,959		
	Total	12220,519	26			

a. Dependent Variable: project_372
b. Predictors: (Constant), Geographic

Table I.22 Estimated coefficients iteration 2 for option 4

Coefficients ^a								
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B		Beta			Tolerance	VIF
1	(Constant)	-1,095	11,839		-0,092	0,927		
	Geographic	8,527	3,224	0,468	2,645	0,014	1,000	1,000

a. Dependent Variable: project_372

Option 5

Table I.23 Model summary iteration 2 for option 5

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,425 ^a	0,181	0,148	23,769
2	,560 ^b	0,313	0,256	22,212

a. Predictors: (Constant), Municipality
b. Predictors: (Constant), Municipality, Male

Table I.24 Result of the ANOVA test iteration 2 for option 5

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3116,313	1	3116,313	5,516	,027 ^b
	Residual	14124,427	25	564,977		
	Total	17240,741	26			
2	Regression	5400,313	2	2700,157	5,473	,011 ^c
	Residual	11840,427	24	493,351		
	Total	17240,741	26			

a. Dependent Variable: project_373
b. Predictors: (Constant), Municipality
c. Predictors: (Constant), Municipality, Male

Table I.25 Estimated coefficients iteration 2 for option 5

Coefficients ^a								
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	Collinearity Statistics	VIF
		B		Beta			Tolerance	
1	(Constant)	-22,328	21,280		-1,049	0,304		
	Municipality	12,672	5,395	0,425	2,349	0,027	1,000	1,000
2	(Constant)	-39,046	21,349		-1,829	0,080		
	Municipality	14,672	5,127	0,492	2,862	0,009	0,967	1,034
	Male	18,718	8,699	0,370	2,152	0,042	0,967	1,034

a. Dependent Variable: project_373

Iteration 3

In iteration 3 the stepwise method was used and all variables except for income and political party voted for were included in the analysis. Missing values were dealt with by substituting them by the means of the values on the variable. In iteration 3 coefficients for option 1, 2, 4 and 5 were estimated. The results are shown in Tables I.26 up to and including I.37.

Option 1

Table I.26 Model summary iteration 3 for option 1

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,540 ^a	0,291	0,273	15,322
2	,622 ^b	0,386	0,353	14,450
a. Predictors: (Constant), Geographic				
b. Predictors: (Constant), Geographic, Temporal				

Table I.27 Result of the ANOVA test iteration 3 for option 1

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3668,115	1	3668,115	15,625	,000 ^b
	Residual	8920,985	38	234,763		
	Total	12589,100	39			
2	Regression	4863,152	2	2431,576	11,645	,000 ^c
	Residual	7725,948	37	208,809		
	Total	12589,100	39			
a. Dependent Variable: project_369						
b. Predictors: (Constant), Geographic						
c. Predictors: (Constant), Geographic, Temporal						

Table I.28 Estimated coefficients iteration 3 for option 1

Coefficients ^a								
Model		Unstandardized Coefficients	Standard Error	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	44,074	8,991		4,902	0,000		
	Geographic	-9,358	2,367	-0,540	-3,953	0,000	1,000	1,000
2	(Constant)	16,252	14,393		1,129	0,266		
	Geographic	-6,512	2,530	-0,376	-2,574	0,014	0,779	1,284
	Temporal	6,435	2,690	0,349	2,392	0,022	0,779	1,284
a. Dependent Variable: project_369								

Option 2

Table I.29 Model summary iteration 3 for option 2

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,433 ^a	0,188	0,167	17,926
a. Predictors: (Constant), Municipality				

Table I.30 Result of the ANOVA test iteration 3 for option 2

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2825,107	1	2825,107	8,792	,005 ^b
	Residual	12210,393	38	321,326		
	Total	15035,500	39			
a. Dependent Variable: project_370						
b. Predictors: (Constant), Municipality						

Table I.31 Estimated coefficients iteration 3 for option 2

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	55,115	14,070		3,917	0,000		
	Municipality	-10,517	3,547	-0,433	-2,965	0,005	1,000	1,000

a. Dependent Variable: project_370

Option 4

Table I.32 Model summary iteration 3 for option 4

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,332 ^a	0,110	0,087	20,183
2	,462 ^b	0,213	0,171	19,235

a. Predictors: (Constant), One_person
b. Predictors: (Constant), One_person, Age_medium

Table I.33 Result of the ANOVA test iteration 3 for option 4

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1920,000	1	1920,000	4,713	,036 ^b
	Residual	15479,900	38	407,366		
	Total	17399,900	39			
2	Regression	3710,250	2	1855,125	5,014	,012 ^c
	Residual	13689,650	37	369,991		
	Total	17399,900	39			

a. Dependent Variable: project_372
b. Predictors: (Constant), One_person
c. Predictors: (Constant), One_person, Age_medium

Table I.34 Estimated coefficients iteration 3 for option 4

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	20,050	4,222		4,749	0,000		
	One_person	16,000	7,370	0,332	2,171	0,036	1,000	1,000
2	(Constant)	24,060	4,417		5,447	0,000		
	One_person	17,384	7,052	0,361	2,465	0,018	0,992	1,008
	Age_medium	-16,604	7,548	-0,322	-2,200	0,034	0,992	1,008

a. Dependent Variable: project_372

Option 5

Table I.35 Model summary iteration 3 for option 5

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,350 ^a	0,122	0,099	22,506

a. Predictors: (Constant), Municipality

Table I.36 Result of the ANOVA test iteration 3 for option 5

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2686,233	1	2686,233	5,303	,027 ^b
	Residual	19247,742	38	506,520		
	Total	21933,975	39			

a. Dependent Variable: project_373
b. Predictors: (Constant), Municipality

Table I.37 Estimated coefficients iteration 3 for option 5

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-15,573	17,666		-0,882	0,384		
	Municipality	10,255	4,453	0,350	2,303	0,027	1,000	1,000

a. Dependent Variable: project_373

Iteration 4

In iteration 4 the stepwise method was used and all variables for were included in the analysis. Missing values were dealt with by substituting them by the means of the values on the variable. In iteration 3 coefficients for option 1, 2, 4 and 5 were estimated. The results are shown in Tables I.38 up to and including I.49.

Option 1

Table I.38 Model summary iteration 4 for option 1

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,540 ^a	0,291	0,273	15,322
2	,653 ^b	0,427	0,396	13,968
3	,714 ^c	0,510	0,469	13,094
a. Predictors: (Constant), Geographic				
b. Predictors: (Constant), Geographic, Left_nationalist				
c. Predictors: (Constant), Geographic, Left_nationalist,				

Table I.39 Result of the ANOVA test iteration 4 for option 1

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3668,115	1	3668,115	15,625	,000 ^b
	Residual	8920,985	38	234,763		
	Total	12589,100	39			
2	Regression	5369,750	2	2684,875	13,760	,000 ^c
	Residual	7219,350	37	195,118		
	Total	12589,100	39			
3	Regression	6416,897	3	2138,966	12,476	,000 ^d
	Residual	6172,203	36	171,450		
	Total	12589,100	39			
a. Dependent Variable: project_369						
b. Predictors: (Constant), Geographic						
c. Predictors: (Constant), Geographic, Left_nationalist						
d. Predictors: (Constant), Geographic, Left_nationalist, Temporal						

Table I.40 Estimated coefficients iteration 4 for option 1

Coefficients ^a								
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B		Beta			Tolerance	VIF
1	(Constant)	44,074	8,991		4,902	0,000		
	Geographic	-9,358	2,367	-0,540	-3,953	0,000	1,000	1,000
2	(Constant)	35,206	8,729		4,033	0,000		
	Geographic	-9,141	2,160	-0,527	-4,233	0,000	0,999	1,001
	Left_nationalist	19,179	6,494	0,368	2,953	0,005	0,999	1,001
3	(Constant)	9,504	13,233		0,718	0,477		
	Geographic	-6,482	2,293	-0,374	-2,827	0,008	0,779	1,284
	Left_nationalist	18,354	6,097	0,352	3,010	0,005	0,996	1,004
	Temporal	6,032	2,441	0,327	2,471	0,018	0,776	1,288
a. Dependent Variable: project_369								

Option 2

Table I.41 Model summary iteration 4 for option 2

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,433 ^a	0,188	0,167	17,926
a. Predictors: (Constant), Municipality				

Table I.42 Result of the ANOVA test iteration 4 for option 2

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2825,107	1	2825,107	8,792	,005 ^b
	Residual	12210,393	38	321,326		
	Total	15035,500	39			
a. Dependent Variable: project_370						
b. Predictors: (Constant), Municipality						

Table I.43 Estimated coefficients iteration 4 for option 2

Coefficients ^a								
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics		
		B	Std. Error	Beta		Tolerance	VIF	
1	(Constant)	55,115	14,070		3,917	0,000		
	Municipality	-10,517	3,547	-0,433	-2,965	0,005	1,000	1,000
a. Dependent Variable: project_370								

Option 4

Table I.44 Model summary iteration 4 for option 4

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,332 ^a	0,110	0,087	20,183
2	,515 ^b	0,265	0,225	18,595
3	,590 ^c	0,348	0,294	17,749
4	,652 ^d	0,425	0,360	16,903
5	,620 ^e	0,385	0,334	17,241
6	,691 ^f	0,478	0,418	16,113
7	,751 ^g	0,564	0,499	14,945
8	,787 ^h	0,619	0,550	14,173
a. Predictors: (Constant), One_person				
b. Predictors: (Constant), One_person, Income_cod				
c. Predictors: (Constant), One_person, Income_cod, Geographic				
d. Predictors: (Constant), One_person, Income_cod, Geographic, Children				
e. Predictors: (Constant), Income_cod, Geographic, Children				
f. Predictors: (Constant), Income_cod, Geographic, Children, Geographic				
g. Predictors: (Constant), Income_cod, Geographic, Children, Geographic				
h. Predictors: (Constant), Income_cod, Geographic, Children, Geographic				

Table I.45 Result of the ANOVA test iteration 4 for option 4

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1920,000	1	1920,000	4,713	,036 ^b
	Residual	15479,900	38	407,366		
	Total	17399,900	39			
2	Regression	4606,226	2	2303,113	6,661	,003 ^c
	Residual	12793,674	37	345,775		
	Total	17399,900	39			
3	Regression	6058,506	3	2019,502	6,410	,001 ^d
	Residual	11341,394	36	315,039		
	Total	17399,900	39			
4	Regression	7400,188	4	1850,047	6,475	,001 ^e
	Residual	9999,712	35	285,706		
	Total	17399,900	39			
5	Regression	6698,719	3	2232,906	7,512	,000 ^f
	Residual	10701,181	36	297,255		
	Total	17399,900	39			
6	Regression	8312,709	4	2078,177	8,004	,000 ^g
	Residual	9087,191	35	259,634		
	Total	17399,900	39			
7	Regression	9805,506	5	1961,101	8,780	,000 ^h
	Residual	7594,394	34	223,365		
	Total	17399,900	39			
8	Regression	10771,398	6	1795,233	8,938	,000 ⁱ
	Residual	6628,502	33	200,864		
	Total	17399,900	39			
a. Dependent Variable: project_372						
b. Predictors: (Constant), One_person						
c. Predictors: (Constant), One_person, Income_cod						
d. Predictors: (Constant), One_person, Income_cod, Geographic						
e. Predictors: (Constant), One_person, Income_cod, Geographic, Children						
f. Predictors: (Constant), Income_cod, Geographic, Children						
g. Predictors: (Constant), Income_cod, Geographic, Children, Paid_work						
h. Predictors: (Constant), Income_cod, Geographic, Children, Paid_work,						
i. Predictors: (Constant), Income_cod, Geographic, Children, Paid_work,						

Table I.46 Estimated coefficients iteration 4 for option 4

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	20,050	4,222		4,749	0,000		
	One_person	16,000	7,370	0,332	2,171	0,036	1,000	1,000
2	(Constant)	-10,570	11,654		-0,907	0,370		
	One_person	23,423	7,294	0,486	3,211	0,003	0,867	1,154
	Income_cod	6,959	2,497	0,422	2,787	0,008	0,867	1,154
3	(Constant)	-31,982	14,940		-2,141	0,039		
	One_person	21,242	7,036	0,441	3,019	0,005	0,849	1,178
	Income_cod	7,060	2,384	0,428	2,962	0,005	0,866	1,154
	Geographic	5,969	2,780	0,293	2,147	0,039	0,973	1,027
4	(Constant)	-36,086	14,353		-2,514	0,017		
	One_person	12,322	7,864	0,256	1,567	0,126	0,616	1,623
	Income_cod	8,082	2,318	0,490	3,486	0,001	0,830	1,204
	Geographic	8,437	2,882	0,414	2,927	0,006	0,821	1,218
	Children	-18,129	8,366	-0,360	-2,167	0,037	0,594	1,684
5	(Constant)	-31,807	14,372		-2,213	0,033		
	Income_cod	7,382	2,321	0,448	3,181	0,003	0,862	1,160
	Geographic	9,881	2,785	0,485	3,548	0,001	0,915	1,093
	Children	-24,992	7,271	-0,497	-3,437	0,001	0,818	1,223
6	(Constant)	-49,426	15,178		-3,256	0,003		
	Income_cod	8,040	2,185	0,488	3,680	0,001	0,850	1,177
	Geographic	10,163	2,605	0,499	3,901	0,000	0,913	1,095
	Children	-28,173	6,914	-0,560	-4,075	0,000	0,790	1,266
	Paid_work	18,689	7,496	0,310	2,493	0,018	0,963	1,039
7	(Constant)	-72,247	16,617		-4,348	0,000		
	Income_cod	10,576	2,251	0,641	4,697	0,000	0,689	1,452
	Geographic	11,693	2,488	0,574	4,700	0,000	0,862	1,161
	Children	-37,155	7,293	-0,739	-5,094	0,000	0,611	1,637
	Paid_work	24,417	7,297	0,406	3,346	0,002	0,874	1,144
	Education_medium	17,517	6,776	0,351	2,585	0,014	0,698	1,433
8	(Constant)	-47,754	19,315		-2,472	0,019		
	Income_cod	10,458	2,136	0,634	4,897	0,000	0,688	1,453
	Geographic	9,369	2,586	0,460	3,623	0,001	0,717	1,395
	Children	-40,162	7,051	-0,798	-5,696	0,000	0,588	1,702
	Paid_work	25,709	6,945	0,427	3,702	0,001	0,868	1,153
	Education_medium	19,372	6,481	0,388	2,989	0,005	0,686	1,457
	Temporal	-5,979	2,726	-0,276	-2,193	0,035	0,729	1,372

a. Dependent Variable: project_372

Option 5

Table I.47 Model summary iteration 4 for option 5

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,350 ^a	0,122	0,099	22,506

a. Predictors: (Constant), Municipality

Table I.48 Result of the ANOVA test iteration 4 for option 5

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2686,233	1	2686,233	5,303	,027 ^b
	Residual	19247,742	38	506,520		
	Total	21933,975	39			

a. Dependent Variable: project_373

b. Predictors: (Constant), Municipality

Table I.49 Estimated coefficients iteration 4 for option 5

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-15,573	17,666		-0,882	0,384		
	Municipality	10,255	4,453	0,350	2,303	0,027	1,000	1,000

a. Dependent Variable: project_373

Appendix J Tests of normality

In this appendix, two tests of normality are presented. These tests are needed since a normal distribution of an independent variable on a dependent variable is needed to perform independent samples t-tests. A normal distribution can be assumed if a sample size is bigger than 30, however, the treatment samples both have a size of twenty. Both the Kolmogorov-Smirnov and Shapiro-Wilk tests are performed, however the results of the latter are used for interpretation as the Shapiro-Wilk test has a better performance for small sample sizes.

Table J.1 shows the results of the tests of normality for all attitudes used in the independent samples t-tests in the two treatments. For each attitude, the null-hypothesis is that the scores on the Likert scales are normally distributed over the treatment samples. It is observed that the null hypothesis is rejected for a majority of the attitudes as the significance level is mostly lower than 0.05.

Table J.1 Test for normality of all attitudes on both treatments

Treatment		Tests of Normality					
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Completeness	Treatment 1	0,317	17	0,000	0,836	17	0,007
	Treatment 2	0,293	12	0,005	0,867	12	0,060
Relevance	Treatment 1	0,348	17	0,000	0,750	17	0,000
	Treatment 2	0,417	12	0,000	0,633	12	0,000
Correctness 1	Treatment 1	0,329	17	0,000	0,835	17	0,006
	Treatment 2	0,235	12	0,067	0,886	12	0,106
Correctness 2	Treatment 1	0,230	17	0,017	0,887	17	0,041
	Treatment 2	0,205	12	0,176	0,890	12	0,118
Timeliness	Treatment 1	0,272	17	0,002	0,834	17	0,006
	Treatment 2	0,314	12	0,002	0,829	12	0,020
Attainability 1	Treatment 1	0,269	17	0,002	0,825	17	0,005
	Treatment 2	0,191	12	,200 [*]	0,906	12	0,187
Attainability 2	Treatment 1	0,300	17	0,000	0,862	17	0,016
	Treatment 2	0,250	12	0,037	0,862	12	0,051
Comprehensibility 1	Treatment 1	0,216	17	0,034	0,874	17	0,025
	Treatment 2	0,352	12	0,000	0,806	12	0,011
Comprehensibility 2	Treatment 1	0,284	17	0,001	0,823	17	0,004
	Treatment 2	0,299	12	0,004	0,863	12	0,053

Trust	Treatment 1	0,224	17	0,024	0,812	17	0,003
	Treatment 2	0,332	12	0,001	0,841	12	0,029
Attainability 3	Treatment 1	0,206	17	0,054	0,913	17	0,111
	Treatment 2	0,499	12	0,000	0,465	12	0,000
Simplicity 1	Treatment 1	0,343	17	0,000	0,828	17	0,005
	Treatment 2	0,198	12	,200*	0,894	12	0,134
Simplicity 2	Treatment 1	0,386	17	0,000	0,755	17	0,001
	Treatment 2	0,284	12	0,008	0,875	12	0,077
Approachability	Treatment 1	0,218	17	0,031	0,908	17	0,091
	Treatment 2	0,245	12	0,044	0,895	12	0,137
Convinced	Treatment 1	0,350	17	0,000	0,781	17	0,001
	Treatment 2	0,487	12	0,000	0,496	12	0,000
Substantiated	Treatment 1	0,310	17	0,000	0,852	17	0,012
	Treatment 2	0,499	12	0,000	0,465	12	0,000
Receive	Treatment 1	0,339	17	0,000	0,832	17	0,006
	Treatment 2	0,354	12	0,000	0,732	12	0,002
Voice	Treatment 1	0,186	17	0,120	0,925	17	0,176
	Treatment 2	0,245	12	0,045	0,912	12	0,228
Realistic	Treatment 1	0,362	17	0,000	0,703	17	0,000
	Treatment 2	0,354	12	0,000	0,732	12	0,002
Involve	Treatment 1	0,457	17	0,000	0,560	17	0,000
	Treatment 2	0,490	12	0,000	0,479	12	0,000
Experiment	Treatment 1	0,428	17	0,000	0,614	17	0,000
	Treatment 2	0,490	12	0,000	0,479	12	0,000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table J.2 shows the results of the tests of normality for the three factors – following from the factor analysis in Appendix K – in the two treatments. For each factor, the null hypothesis is that the factor scores are normally distributed over the treatment samples. It is observed that the null hypothesis is

accepted for the first two factors in both treatments. However, for the third factor the null hypothesis is rejected. In both treatments, this factor is not normally distributed.

Table J.2 Test for normality for the three factors on both treatments

Tests of Normality							
Treatment		Kolmogoro v-Smirnov ^a			Shapiro- Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Factor 1	Treatment 1	0,179	17	0,151	0,919	17	0,144
	Treatment 2	0,122	13	,200*	0,974	13	0,941
Factor 2	Treatment 1	0,095	17	,200*	0,974	17	0,890
	Treatment 2	0,176	13	,200*	0,913	13	0,204
Factor 3	Treatment 1	0,225	17	0,022	0,874	17	0,025
	Treatment 2	0,283	13	0,005	0,796	13	0,006
*. This is a lower bound of the true significance.							
a. Lilliefors Significance Correction							

Appendix K Factor analysis

In this appendix, the steps followed in the factor analysis are presented. For every step, the choices made are elaborated. A factor analysis is performed to reduce the number of variables – i.e. the statements that represent an attitude. This is often done for attitudinal variables (Hair et al., 2013). Moreover, the analysis will show whether the statements measure the same predefined attitudes.

Step 1

In step 1 all attitudes on the quality of information, empowerment and the PVE method were included in the analysis. The factor analysis was done with Principal Axis Factoring in all steps. Moreover, in all steps loadings smaller than 0.30 were left out of the tables. In step 1 Oblimin rotation is used, since Varimax rotation delivered less useful results.

Table K.1 shows that the loadings on the sixth factor are quite low. Besides, the eigenvalue of the sixth factor was low. In the second step the sixth factor was left out of the analysis.

Table K.1 Results of the factor analysis step 1

	Pattern Matrix ^a					
	Factor					
	1	2	3	4	5	6
Attainability 1	0,882					
Correctness 2	0,881					
Completeness	0,860					
Correctness 1	0,853				0,391	
Comprehensibility 1	0,789					
Relevance	0,786		0,414			
Timeliness	0,689					
Trust	0,639				0,484	
Receive	0,630			-0,369		
Approachability		0,815				
Comprehensibility 2		0,670				0,321
Voice		0,601	-0,331			
Attainability 3		0,596			-0,460	
Attainability 2	0,410	0,413				
Simplicity 2			0,740			
Involve				-0,881		
Experiment				-0,721		
Realistic				-0,694		
Substantiated		0,388		-0,613		
Convinced				-0,452	0,413	-0,402
Simplicity 1						0,594

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 22 iterations.

Table K.2 Results of the factor analysis step 2

	Pattern Matrix ^a				
	Factor				
	1	2	3	4	5
Correctness 1	0,886				
Correctness 2	0,880				
Attainability 1	0,853				
Completeness	0,821				
Relevance	0,784				
Comprehensibility 1	0,742				-0,347
Timeliness	0,710				
Trust	0,705				0,459
Receive	0,562			-0,415	-0,357
Approachability		0,735			
Comprehensibility 2		0,690			
Attainability 3		0,642			-0,434
Voice		0,609			
Attainability 2	0,380	0,465	-0,339		
Simplicity 2			0,622		
Simplicity 1			-0,529		
Involve				-0,866	
Realistic				-0,716	
Experiment				-0,674	
Substantiated		0,399		-0,627	
Convinced				-0,567	

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 16 iterations.

Step 2

In step 2 the factor analysis was forced to five factors. Again, an Oblimin rotation is used. Table K.2 shows that 'Attainability 2' has no loadings bigger than 0.50 on any of the factors.

Step 3

In step 3 'Attainability 2' was left out because of its low loading on all factors. Table K.3 shows the results of step 3. It is observed that the 'Convinced' attitudes has no loadings bigger than 0.5 on any factors.

Table K.3 Results of the factor analysis step 3

Pattern Matrix ^a					
	Factor				
	1	2	3	4	5
Correctness 1	0,928				
Correctness 2	0,889				
Attainability 1	0,828				
Completeness	0,816				-0,327
Trust	0,767				0,437
Relevance	0,753				
Comprehensibility 1	0,717				-0,390
Timeliness	0,717				
Receive	0,586		0,359		-0,383
Approachability		0,860			
Voice		0,661		0,344	
Comprehensibility 2		0,580			
Attainability 3		0,563			-0,399
Realistic			0,782		
Experiment			0,747		
Involve			0,719	-0,320	
Substantiated		0,427	0,595		
Convinced			0,411		
Simplicity 2				-0,535	
Simplicity 1				0,532	
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.					
a. Rotation converged in 14 iterations.					

Table K.4 Results of the factor analysis step 4

Pattern Matrix ^a					
	Factor				
	1	2	3	4	5
Correctness 1	0,947				
Trust	0,851				
Correctness 2	0,823				
Relevance	0,787				
Timeliness	0,723				
Attainability 1	0,702				
Completeness	0,647				-0,340
Approachability		0,809			
Comprehensibility 2		0,611			
Voice		0,602	-0,397		
Attainability 3		0,520			-0,437
Simplicity 2			0,849		
Experiment				0,824	
Realistic				0,823	
Involve				0,609	
Substantiated		0,388		0,596	
Comprehensibility 1	0,541				-0,579
Receive	0,398			0,408	-0,502
Simplicity 1					0,476
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.					
a. Rotation converged in 24 iterations.					

Step 4

In step 4 the 'Convinced' attitude was left out of the analysis. This time, as Table K.4 shows, 'Simplicity 1' has no loadings bigger than 0.5 on any factors.

Step 5

In step 4 the 'Simplicity 1' was left out of the analysis. Table K.5 shows that factor 5 does not have any loadings higher than 0,5. In the next step this factor is left out of the analysis.

Table K.5 Results of the factor analysis step 5

Pattern Matrix ^a					
	Factor				
	1	2	3	4	5
Correctness 2	0,882				
Attainability 1	0,867				
Completeness	0,862				
Correctness 1	0,855				0,339
Comprehensibility 1	0,806				-0,332
Relevance	0,785				
Timeliness	0,690				
Trust	0,673				0,464
Receive	0,671			-0,320	-0,335
Approachability		0,823			
Voice		0,618	-0,366		
Attainability 3		0,597			-0,435
Comprehensibility 2		0,592			
Simplicity 2			0,916		
Experiment				-0,840	
Realistic				-0,786	
Involve				-0,617	
Substantiated		0,405		-0,575	
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.					
a. Rotation converged in 11 iterations.					

Table K.6 Results of the factor analysis step 6

Pattern Matrix ^a				
	Factor			
	1	2	3	4
Correctness 2	0,905			
Correctness 1	0,898			
Attainability 1	0,851			
Completeness	0,825			
Relevance	0,805			
Comprehensibility 1	0,744			
Timeliness	0,722			
Trust	0,721			
Receive	0,624			-0,326
Approachability		0,848		
Attainability 3		0,685		
Voice		0,623	-0,353	
Comprehensibility 2		0,497		
Simplicity 2			0,971	
Experiment				-0,811
Realistic				-0,789
Involve				-0,606
Substantiated		0,428		-0,555
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.				
a. Rotation converged in 8 iterations.				

Step 6

In step 5 the factor analysis was forced to four factors. It is observed in Table K.6 that this time the third factor has only one loading above 0.5, where two per factor are needed. The third factor is left out of the analysis in the next step.

Step 7

In step 7 the factor analysis was forced to three factors. The results of this step showed that the communality of 'Simplicity 2' was lower than 0.25 and this should be higher. The effect is also observed in Table K.7. 'Simplicity 2' does not have loadings on any of the factors.

Table K.7 Results of the factor analysis step 7

Pattern Matrix ^a			
	Factor		
	1	2	3
Correctness 2	0,910		
Correctness 1	0,902		
Attainability 1	0,858		
Completeness	0,837		
Relevance	0,784		
Comprehensibility 1	0,740		
Trust	0,726		
Timeliness	0,718		
Receive	0,644		-0,324
Approachability		0,840	
Attainability 3		0,650	
Voice		0,623	
Comprehensibility 2		0,496	
Realistic			-0,798
Experiment			-0,796
Involve			-0,589
Substantiated		0,430	-0,558
Simplicity 2			
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.			
a. Rotation converged in 8 iterations.			

Table K.8 Results of the factor analysis step 8

Pattern Matrix ^a			
	Factor		
	1	2	3
Correctness 2	0,907		
Correctness 1	0,903		
Attainability 1	0,853		
Completeness	0,826		
Relevance	0,788		
Comprehensibility 1	0,741		
Timeliness	0,724		
Trust	0,724		
Receive	0,622		-0,332
Approachability		0,844	
Attainability 3		0,662	
Voice		0,636	
Comprehensibility 2		0,506	
Realistic			-0,806
Experiment			-0,783
Involve			-0,581
Substantiated		0,457	-0,565
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.			
a. Rotation converged in 7 iterations.			

Step 8

In step 8 ‘Simplicity 2’ was left out of the analysis. Table K.8 shows that ‘Substantiated’ loads high on two factors of which one is lower than 0.5, but close to 0.5. This is a reason to leave the attitude out, since it loads high on both factors. It also complicates the interpretation of the factors, which can be an argument to leave out a variable. If a factor cannot be interpreted, it probably does not represent an attitude.

Step 9

In the final step ‘Substantiated’ was left out of the analysis. Table K.9 shows that ‘Receive’ loads on two factors. However, the loading on the third factor is close to 0.3, beneath which loadings can be neglected.

Table K.9 Results of the factor analysis step 9

Pattern Matrix ^a			
	Factor		
	1	2	3
Correctness 1	0,917		
Correctness 2	0,900		
Attainability 1	0,846		
Completeness	0,828		
Relevance	0,781		
Timeliness	0,730		
Comprehensibility 1	0,728		
Trust	0,721		
Receive	0,624		-0,321
Approachability		0,846	
Attainability 3		0,676	
Voice		0,627	
Comprehensibility 2		0,497	
Experiment			-0,841
Realistic			-0,764
Involve			-0,554
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.			
a. Rotation converged in 6 iterations.			

The factors in Table K.9 are interpreted and used in the analysis of the influence of the treatments on the attitudes of respondents. The three factors are interpreted as follows:

1. Factor 1 comprises correctness 1, correctness 2, attainability 1, completeness, relevance, timeliness, comprehensibility 1, trust and receive. Except for comprehensibility 2 and attainability 2 all statements related to the quality of information selection are included in this factor. The receive statement that was categorized in empowerment asked respondents whether they thought they received enough information to state their preference. This also relates to the selection of information. Therefore, this factor represents the attitude of respondents towards the quality of the information selection.
2. Factor 2 consists of the statement's approachability, attainability 3, voice and comprehensibility 2. This factor is related to whether the presentation of information connects to what respondents need, the extent to which respondents understand the necessity of the options and the extent to which the participation process provides them with a voice. This factor therefore represents the relation between information presentation and empowerment. The factor is called information presentation.
3. Factor 3 includes realistic, involve and experiment and therewith consists of all statements related to the evaluation of PVE. The factor is therefore called Evaluation PVE.

After the factors were interpreted, the factor scores were constructed on basis of regression. Table K.10 shows the correlations between the factors.

Table K.10 Correlation matrix of final factor construction

Factor Correlation Matrix			
Factor	1	2	3
1	1,000	0,218	-0,372
2	0,218	1,000	-0,318
3	-0,372	-0,318	1,000

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.