Citizens' preferences for participation in urban planning

Towards an inclusive and representative process

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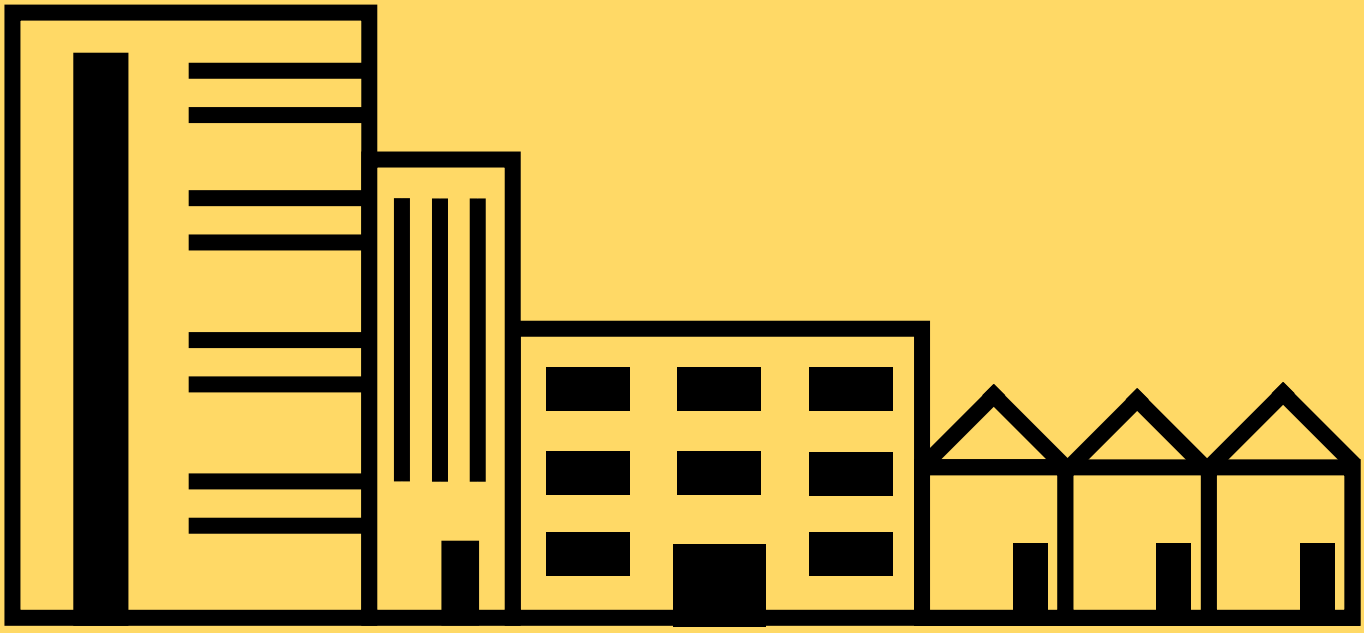

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Preface

With this report I have finalized my student career at Eindhoven University of Technology, which makes me relieved, but also a little bit sad. The past years have not been the last student years that I would have wished for and graduating in corona times may have been one of the hardest things I have done during my studies. Still, I am proud that I have continued working hard and thorough to finish this thesis and I think it has yielded some interesting results.

During my Bachelor study I was focusing more on the design aspect of the Built Environment, but I was more and more concerned about whether we were designing things we liked ourselves instead of focusing on how people actually value their living environment and how their living environment may change the way they behave. Thus, I chose to continue my Master studying people's behavior and even gave them a central role in this Master thesis. I hope that in my career I can contribute to making high quality living environments in collaboration with (future) residents, that have a positive impact on the way they interact in it and generally make them feel happy to be there.

I would like to thank my supervisors for their help and expertise during the execution of my research and writing this thesis. Whenever I was stuck in the process, there was always someone to help me out. I would also like to thank all my "study buddies" that have eased studying during corona and have helped me to keep a positive attitude. Specifically, I want to thank my wonderful friends, who have given me a space to study in lockdown, have provided me with the necessary amount of coffee breaks and have helped me to stay mentally and physically fit. And of course, my boyfriend who has put up with all the daily frustrations that came along with graduating. Last of all, a shout out to Sander who have helped me writing the Python script, making the data transformation a lot easier, and to Veerle and Friso who have checked my report.

Now, we can celebrate together that it is finally done, and I can proudly say that I have Master of Science!

All that remains is that I hope that you will enjoy reading this thesis.

Romee den Boer
Eindhoven, February 2022

Summary

Citizen participation is a growing phenomenon in urban planning around the globe. In the Netherlands more direct ways for citizens to participate have been setup since the 1970s (Edelenbos, Klok, Van Tatenhove, & Domingo, 2006). In the new Environmental and Planning Act that is expected to come into effect at the end of 2022 or beginning of 2023 (Rijksoverheid, n.d.e), citizen participation in urban planning even becomes mandatory for governments (L'Ortye & Van Brunschot, 2019). Citizen participation can help to retrieve citizens' different interests, so that policy outcomes reflect their will (Christensen, 2020). This can help to create support for policies and increase acceptance of governmental decisions and to find solutions to complex and controversial problems, thus increasing the efficiency, effectiveness and innovativeness of governing (Dente, Bobbio, & Spada, 2005; Edelenbos et al., 2006; Michels, 2011; Radzik-Maruszak & Bátorová, 2015). However, attracting (a diverse group of) citizens to participate and involving them equally in the process remains difficult (Agger, 2012; Ertiö, 2015; Radzik-Maruszak & Bátorová, 2015; Li et al., 2020b). In order to achieve an inclusive and representative participation process, willingness of all members of society to participate should increase. However, citizens' preferences for participation processes vary (Agger, 2012; Li et al., 2020b). By using the right approaches and tools, participation processes can be tailored to the preferences of different groups of citizens, thus increasing their willingness to participate, which is assumed to lead to increased actual participation. The main question of this research is therefore: *"How can effective participatory processes in urban development be set up that align with the preferences of different groups of citizens, with the aim to increase the willingness of citizens to participate, thereby increasing the chance of inclusive and representative participation processes?"*

An extensive literature study was carried out to explore which process and personal characteristics may influence citizens' willingness to participate in urban planning and/or their preferences for participation processes. It could be deduced that the context of the project, how citizens are invited to participate, the intensity of participation, the level of involvement, the level of communication during and after the process, the chosen participatory methods and tools, external rewards and access to information and technology that are needed to be able to participate were influencing factors. Moreover, different types of civic participants were identified. If and how people participate depended on sociodemographic, political, social and psychological factors.

To examine citizens' preferences for participatory processes in urban planning, a stated choice experiment was executed. Respondents were given a specific urban planning context and within this context they had to choose eight times between two processes with varying attribute levels. The context varied between respondents, to be able to measure the influence of the content (housing or greenery) and scale (neighborhood or city) of the project. In addition, the choice tasks revealed which process attributes had the highest utility and were thus the most preferred. The processes varied with regard to the channel for participation (online/offline), the level of involvement (be informed, give advice or co-decide), whether citizens participated collectively or individually, the frequency of involvement (once, 2 to 5 times or more than 5 times), the time requirement (less than 15 minutes, 15 to 60 minutes or more than 60 minutes) and the feedback given after the process (no feedback, feedback about the outcomes or feedback about the outcomes and decision-making process). The online survey also included personal characteristics, to enable examining whether preferences varied for different sociodemographic, psychological, political and social characteristics. The data was retrieved from 321 respondents and analyzed using a Multinomial Logit (MNL) model and a Latent Class (LC) model. The MNL model was used to determine the general preferences for participation, whereas the LC model was used to determine if different groups with similar preferences could be identified.

Using chi square tests and independent samples t-tests, the relationship between several personal characteristics and class membership was analyzed.

From the results it could be concluded that in general respondents preferred processes that are not too time consuming, and they want to receive elaborate feedback afterwards. In addition, individual methods in which citizens can give advice (e.g., surveys) are desired. Whether participation took place online or offline did not affect their preferences. Moreover, personal characteristics were found to be influential factors, since two distinct types of participants could be identified with accompanying personal characteristics. First of all, 'Engaged citizens' could be defined, that were more likely to choose one of the participation processes and preferred to participate two to five times for less than 60 minutes and to receive feedback about the outcomes and the decision-making process. They want to participate because they are interested in urban planning, or they want to develop themselves. Secondly, there were the 'Passive citizens' who were more likely to choose the 'no choice' option and preferred to participate once and for less than 15 minutes. Moreover, online individual methods were preferred by this group. The 'Passive citizens' do not want to participate, because they do not know enough about urban planning or because they think it takes too much effort. The 'Engaged citizens' were older and had lived longer in their neighborhood. Moreover, they were more civically active, more extravert and had a higher trust in their capability to join participation processes than the 'Passive citizens'. Lastly, the context of the project affected citizens' preferences for participation. The general preferences for the level of involvement, the time requirement and the feedback were affected by the scale of the project. In addition, the preferences of the distinct types of participants varied by the scale and topic of the project. On the neighborhood scale, rather than the city scale, 'Engaged citizens' preferred to participate collectively offline. When the project was about greenery, 'Passive citizens' preferred elaborate feedback and their preference for individual participation strengthened in comparison to a project about housing.

This study showed that to enhance the engagement of a diverse group of citizens, processes should not be too time consuming and extra attention should be paid to providing elaborate feedback after the process. From the literature it could be concluded that inviting citizens personally also has the potential to increase citizens' willingness to participate, as well as reducing barriers for participation by for instance using convenient meeting times and places (or using digital tools). It was also found that to ensure the effectiveness of participation processes, the design of the process should be in line with the goal of the process as defined by the initiator and the process should be carefully managed. At the beginning of the process, clear boundaries and/or rules should be created regarding the goal of the process and the role/power of the participants and background information of the project should be shared. Besides, the manager(s) should maintain neutrality throughout the process and ensure that the input from the participants is translated into action by establishing policies, raising awareness and support for the participation process and securing the necessary (financial) means. By acknowledging the competences of the participants and demonstrating that their advice resulted in concrete changes, the chance may increase that citizens will participate again in the future.

Samenvatting

Burgerparticipatie binnen stedelijke ontwikkelingen is een groeiend fenomeen over de hele wereld. In Nederland zijn sinds 1970 de manieren om als burger meer directe invloed uit te oefenen toegenomen (Edelenbos et al., 2006). In de nieuwe Omgevingswet die eind 2022 of begin 2023 wordt ingevoerd (Rijksoverheid, n.d.e), wordt burgerparticipatie binnen stedelijke ontwikkelingen voor gemeentes zelfs verplicht (L'Ortye & Van Brunschot, 2019). Burgerparticipatie kan helpen om de verschillende belangen van burgers op te halen, zodat beleidsuitkomsten hun belangen meewegen (Christensen, 2020). Dit kan ervoor zorgen dat er meer draagvlak gecreëerd wordt voor beleid en overheidsbeslissingen makkelijker geaccepteerd worden. Bovendien kan het helpen in het vinden van oplossingen voor complexe en controversiële problemen, zodat de efficiëntie, de effectiviteit en de innovativiteit van besturen toeneemt (Dente et al., 2005; Edelenbos et al., 2006; Michels, 2011; Radzik-Maruszak & Bátorová, 2015). Het blijft echter lastig om (een diverse groep van) burgers (gelijk) te betrekken in participatieprocessen (Agger, 2012; Ertiö, 2015; Radzik-Maruszak & Bátorová, 2015; Li et al., 2020b). Om de inclusiviteit en representativiteit van participatieprocessen te vergroten is het belangrijk dat meer burgers bereid worden om mee te doen. Bovendien hebben verschillende mensen verschillende voorkeuren voor participatie (Agger, 2012; Li et al., 2020b). Door de juiste aanpak te gebruiken, kunnen participatieprocessen afgestemd worden op de voorkeuren van verschillende groepen burgers, waardoor het verwacht kan worden dat hun bereidheid om mee te doen wordt vergroot, wat uiteindelijk kan bijdragen aan meer inclusieve en representatieve participatie processen. De hoofdvraag van dit onderzoek is daarom*: "Hoe kunnen binnen stedelijke ontwikkelingen effectieve participatieprocessen opgezet worden in lijn met de voorkeuren van verschillende groepen burgers, met als doel het vergroten van hun bereidheid om mee te doen en dus de kans op inclusieve en representatieve participatieprocessen te vergroten?"*

Een uitgebreid literatuuronderzoek was uitgevoerd om uit te vinden welke proces- en persoonlijke kenmerken van invloed kunnen zijn op de bereidheid van burgers om mee te doen/op hun voorkeuren voor participatieprocessen. De literatuur toonde aan dat de context van het project, hoe burgers uitgenodigd worden, de intensiteit van het participatieproces, de mate van invloed, de mate van communicatie tijdens en na het proces, de gekozen participatiemethoden, externe beloningen en toegang tot informatie en technologie die nodig zijn om mee te kunnen doen belangrijke factoren zijn. Bovendien konden er verschillende typen burgers geïdentificeerd worden die op verschillende manieren politiek en maatschappelijk betrokken zijn, wat dus ook verwacht kon worden binnen de context van stedelijke ontwikkelingen. Of en hoe men betrokken was, was afhankelijk van sociaal demografische, politieke, sociale en psychologische factoren.

Om de voorkeuren voor participatieprocessen binnen stedelijke ontwikkelingen te onderzoeken werd er een conjuncte-keuze-experiment gebruikt. Respondenten kregen een specifiek voorbeeld van een stedelijke ontwikkeling te zien, waarna ze binnen deze context acht keer tussen twee verschillende participatie processen moesten kiezen met variërende procesattributen. De context varieerde tussen respondenten, zodat het mogelijk was om de invloed van de inhoud (project over wonen of over groen) en de schaal van het project (buurt- of stadsniveau) te meten. Bovendien kon via de keuzetaken achterhaald worden welke procesattributen het grootste nut toegedeeld kregen en waar respondenten dus de grootste voorkeur voor hadden. De procesattributen die meegenomen waren in de studie zijn het participatiekanaal (online of offline), de mate van betrokkenheid (informeren, adviseren of meebeslissen), of men in een groep of individueel meedeed, hoe vaak men meedeed (1 keer, 2 tot 5 keer of meer dan 5 keer), hoe lang men meedeed (minder dan 15 minuten, 15 tot 60 minuten of meer

dan 60 minuten) en wat er teruggekoppeld werd na het participatieproces (geen feedback, feedback over de uitkomsten of feedback over de uitkomsten en het besluitvormingsproces). De online vragenlijst bevatte ook persoonlijke kenmerken om er achter te komen of de voorkeuren verschilden voor verschillende sociaal demografische, psychologische, politieke en sociale kenmerken. De data van 321 respondenten waren geanalyseerd met behulp van een Multinomiale Logit (MNL) model en een Latente Klasse (LK) model. Het MNL model bepaalde de algemene voorkeuren voor participatie, terwijl het LK model groepen onderscheidde met dezelfde voorkeuren voor participatie. De chi-kwadraat toets en de onafhankelijke t-toets zijn gebruikt om de relatie te analyseren tussen de verschillende persoonskenmerken en het behoren tot één van deze groepen.

Uit de resultaten kwam naar voren dat respondenten over het algemeen het vooral belangrijk vinden dat er uitgebreide feedback wordt gegeven na het participatieproces. Bovendien willen ze niet dat processen te veel tijd kosten. Daarnaast hadden individuele participatiemethodes waarin men advies kon geven de voorkeur (bijv. via een vragenlijst). Of participatie online of offline plaatsvond had geen effect op hun voorkeuren. De persoonlijke kenmerken bleken ook invloed te hebben, aangezien er twee verschillende type participanten konden worden onderscheiden die ook konden worden gekenmerkt a.d.h.v. verschillende persoonskenmerken. Ten eerste konden de 'Betrokken burgers' worden onderscheiden, die meer geneigd waren om één van de twee participatie processen te kiezen en de voorkeur hadden om twee tot vijf keer mee te doen voor minder dan een uur per keer. Bovendien wilden zij graag feedback over de uitkomsten en het besluitvormingsproces krijgen. Daarnaast wilden zij het liefst individueel advies geven. Deze groep wilde meedoen omdat ze geïnteresseerd zijn in stedelijke ontwikkelingen of omdat ze zichzelf willen ontwikkelen. Ten tweede konden de 'Passieve burgers' worden onderscheiden, die vaker aangaven dat ze niet mee zouden doen als ze uitgenodigd zouden worden voor het door hun gekozen participatieproces. Bovendien hadden ze de voorkeur om één keer en voor minder dan 15 minuten mee te doen. Daarnaast wilden ze het liefst online en individueel geïnformeerd worden. De 'Passieve burgers' willen niet meedoen omdat ze niet genoeg kennis hebben over stedelijke ontwikkelingen of omdat ze het te veel moeite vinden. De 'Betrokken burgers' zijn ouder en leven langer in hun gemeente dan de 'Passieve burgers'. Ze zijn ook meer politiek en maatschappelijk betrokken, zijn extraverter en hebben er meer vertrouwen in dat ze geschikt zijn om mee te doen in een participatieproces binnen stedelijke ontwikkelingen. Als laatste toonde de resultaten aan dat de context invloed heeft op de voorkeuren van burgers voor participatie. De algemene voorkeuren voor de mate van betrokkenheid, de tijdsduur en de terugkoppeling werden beïnvloed door de schaal van het project. De voorkeuren van de twee verschillende groepen varieerden a.d.h.v. de schaal en de inhoud van het project. Als het project over de buurt ging i.p.v. over de stad, dan wilden de 'Betrokken burgers' liever offline en in een groep participeren. Als het project over groen ging dan werden de voorkeuren van de 'Passieve burgers' voor uitgebreide feedback en voor individuele participatie versterkt t.o.v. een project over wonen.

Dit onderzoek toonde aan dat om een diverse groep burgers te betrekken bij stedelijke ontwikkelingen, de participatieprocessen niet te veel tijd moeten kosten en dat er extra aandacht moet worden besteed aan het terugkoppelen van de resultaten van het proces en besluitvormingsproces. Bovendien blijkt uit de literatuur dat de bereidheid voor participatie ook vergroot kan worden door burgers persoonlijk uit te nodigen en om barrières voor participatie te verkleinen door bijvoorbeeld geschikte tijden en plekken te gebruiken (of digitale methodes). In de literatuur kwam ook naar voren dat om een participatieproces effectief te maken het proces niet alleen in overeenstemming met de wensen van burgers moet zijn, maar ook in lijn met het doel van het proces. Daarnaast moet het proces ook zorgvuldig gestuurd worden. Aan het begin van het proces moeten er duidelijke afspraken gemaakt worden over het doel van het proces en de rol en macht van de deelnemers. Bovendien is het handig om achtergrondinformatie over het project te verschaffen. Tijdens het proces moeten managers neutraal

blijven en zorgen dat de input van de deelnemers omgezet kan worden in actie, door beleid te creëren, aandacht en draagvlak voor het participatieproces te genereren en te zorgen voor de benodigde (financiële) middelen. Door de competenties van de deelnemers te erkennen en aan te tonen dat hun advies tot concreet resultaat leidt kan de kans vergroot worden dat zij in de toekomst opnieuw mee willen doen.

Abstract

Urban planning is a complex process which requires the support of the public. Citizen participation aims to retrieve the interests of the public at an early stage of the urban planning process to create support for decisions and it has the potential to create more innovative, effective and efficient plans. In the past years, a broad range of (digital) participatory approaches have been developed to engage citizens in the decision-making process. However, it remains unknown how citizens evaluate these participatory approaches. This study examines citizens' preferences for participation processes in urban planning and how characteristics of such processes influence their preferences. A stated choice experiment was conducted to study the impact of the channel, the level of involvement, collective or individual participation, the frequency of involvement and the time requirement of the participation process and the feedback that is given afterwards on citizens' evaluation of participatory processes. Furthermore, it was examined how the topic and the scale of the urban planning project influenced citizens' preferences. Lastly, the influence of different personal characteristics was analyzed by exploring if different groups of individuals with similar preferences could be identified. The results show that people want incidental and short participation processes with elaborate feedback after the process. In addition, people prefer to individually give advice about urban planning projects. These effects are dependent on the context. Moreover, two different types of participants were identified with distinct personal characteristics. The research findings provide insight into how citizens can best be engaged within urban planning and can be used as guidelines for municipal participation policies.

Keywords: Citizen participation; urban planning; stated choice experiment; participatory processes

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1. Introduction

In the 20th century the development of complex mass societies has resulted in the formation of representative democracies in the Western world (Michels, 2011). A representative democracy is an indirect form of democracy, in which citizens participate via elections, by voting on parties or persons that will make decisions on policy proposals on their behalf (Edelenbos et al., 2006; Michels, 2011). The legitimacy of such a system is being questioned, since today's challenges have become much more complex (Michels, 2011) and are believed to no longer be solvable through a top-down approach. The government has become dependent on a variety of actors to formulate and execute their policy in an effective, efficient and authoritative way (Edelenbos et al., 2006). Moreover, decreasing voter turnout and increasing changes in voting behavior has resulted in a decline of the representation function of political parties. This has raised demands for more citizen participation (Michels, 2011). Citizen participation refers to the participation of citizens in political decision-making and the creation of policy (Edelenbos et al., 2006).

In the Netherlands the interest in more direct forms of participation has grown since the 1970s. Before this time, Dutch citizens were only indirectly involved in governmental policy- and decision-making processes, via formal channels of the representative democracy, such as the right to vote, petition right and public hearings. This meant that they could only react on governmental plans after they had been setup. Since the '90s the call for a more direct influence on policies increased, due to the changing relationships between the state, civil society and the market. This resulted in the development of various forms of indirect and direct participation, such as consultation evenings, discussion groups and co-creation (Edelenbos et al., 2006). In the last decades, the government increasingly encouraged citizens' initiatives. In this so called 'Do-democracy', the government has a facilitating role; the government and its citizens work together, making it possible to tailor solutions to policy issues (Van de Wijdeven, De Graaf, & Hendriks, 2013; Rijksoverheid, n.d.a).

Citizen participation has also attracted considerable interest in urban planning theory and practice. Since the 1970s a growing body of literature has addressed the potential of citizen participation in urban planning and has evaluated various forms of citizen participation on their successes and failures. It has become apparent that practices differ widely by country, city, theme, and time period (Barrett & Brunton-Smith, 2014; Li et al., 2020b). Moreover, the importance of citizen participation in urban planning is also acknowledged in the Netherlands. In October 2022 or January 2023, it is expected that a new Environmental and Planning Act comes into effect (Rijksoverheid, n.d.e), which stimulates early participation in urban planning. In this act citizen participation is defined as "the involvement of stakeholders (citizens, businesses, civil society organizations and other governing bodies) at an early stage in the process of decision-making about a project or activity, with the aim to accelerate the process and make it run better, by retrieving the different interests or to let others think along/participate in plans and initiatives" (VNG, 2020; L'Ortye & Van Brunschot, 2019). Although this act does not state anything about how to design participation policy, municipalities are advised to lay down how they plan to create accessible and representative processes (Informatiepunt Leefomgeving, n.d.).

There are many arguments in favor of citizen participation. First of all, citizen participation can reduce the gap between the government and citizens, by including individual citizens in the policy process (Edelenbos et al., 2006; Michels, 2011; Radzik-Maruszak & Bátorová, 2015). Additionally, it can create support for policies and increase the acceptance of governmental decisions, which increases the efficiency and effectiveness of governing (Edelenbos et al., 2006; Michels, 2011; Radzik-Maruszak & Bátorová, 2015). Secondly, up-to-date knowledge can be gained from citizen participation, which can make the process more effective and more innovative, as it helps to find solutions to complex and

controversial problems and refreshes the content of policies (Dente et al., 2005; Edelenbos et al., 2006; Michels, 2011; Oakley, 1991; Li et al., 2020b). Third, citizen participation has an educational function. Officials aim to learn more about the opinions and perspectives of participants and to inform participants about policies (Williamson & Fung, 2004). This has a positive effect on the development of knowledge, skills and virtues of citizens (Michels, 2011; Radzik-Maruszak & Bátorová, 2015). Fourth, citizen participation may lead to rational decisions based on public reasoning and increases the legitimacy of decisions (Michels, 2011). Lastly, participation is often aimed at increasing the number of individuals that take part in policymaking (Williamson & Fung, 2004).

It should however be nuanced that some of these benefits, such as deliberation, legitimacy of decisions and encouragement of civic skills, are only experienced by the people that join participation processes (Michels, 2011). The number of participants and the representativeness of the participants for the wider society varies between different participatory approaches (Williamson & Fung, 2004). Although citizen participation processes generally aim to engage all, there is often a lack of representation among citizens in participation processes (Radzik-Maruszak & Bátorová, 2015). Participants are often those with political know-how, time and professional knowledge (Agger, 2012; Fung, 2004) and share similar demographic characteristics (e.g. older, more resourceful citizens) (Larson & Lach, 2008; Radzik-Maruszak & Bátorová, 2015). It has appeared difficult to include more disadvantaged and less articulate groups (e.g. low-income groups) (Roberts, 2004). This is also referred to as "external exclusion" (Fung, 2004). Background equality is however argued to result in a fairer, more effective process and can increase the levels of participation (Fung, 2005). Inequality can lead to an overrepresentation of certain values, which can undermine both the quality and legitimacy of the outcomes of participation processes (Christensen & Schoultz, 2017). Including all citizens in participatory processes may be a challenge for several reasons. First of all, there are structural inequalities in society (Fung, 2004; Roberts, 2004). Secondly, citizens are not all equally interested in deeper involvement (Christensen & Schoultz, 2017; Radzik-Maruszak & Bátorová, 2015). Moreover, constraints, such as a lack of information, effective communication, convenient methods and time, can hinder citizens from being involved (Tscharn, Löffler, Lipp, Kuge, & Hurtienne, 2015; Li et al., 2020a).

As said, whether citizens engage in participation processes partially depends on the way participation processes are designed (e.g. who is invited, how are participants informed, what is the method for participation, etc.) (Li et al., 2020a; Williamson & Fung, 2004). Some studies have argued that citizens have different preferences for participation processes (Agger, 2012; Christensen, 2020; Li, Feng, Timmermans, & Zhang, 2020). Knowing how citizens want to be involved can help to design the process in such a way that it is aligned with their preferences, which can improve their willingness to participate and is therefore more likely to result in inclusive and representative processes.

Although there are already some insights into the preferences for citizen participation in governmental policy-making in Finland (Christensen, 2020) and online citizen participation in urban planning in China (Li et al., 2020), it remains unknown how different approaches of citizen participation in urban planning are evaluated by citizens in the Dutch context. This study examines which participatory approaches are preferred by Dutch citizens and whether these preferences vary among citizens, through a stated-choice experiment. The main question of this study is:

"How can effective participatory processes in urban developments be set up that align with the preferences of different groups of citizens, with the aim to increase the willingness of citizens to participate, thereby increasing the chance of inclusive and representative participation processes?"

In order to answer the main question, six sub questions have been setup:

1. Which types of participants exist in civic participation and how can they be characterized?
2. Which personal characteristics influence citizens' willingness to participate?
3. How are citizen participation processes set up and how can they be characterized?
4. Which process characteristics influence citizens' willingness to participate?
5. How can the preferences for citizen participation be measured?
6. What are citizens' preferences for urban planning participation approaches and which factors influence these preferences?

This study adds to the scientific knowledge about the general preferences for citizen participation approaches in the context of urban planning from a citizens' perspective, of which the knowledge is limited. Moreover, it adds to existing literature by examining whether different groups of citizens can be found with different preferences for participation processes in urban planning. The results of this study can help municipalities to shape their participation policies, but also give private initiators (e.g. developers or citizens themselves) of urban developments or activities insight into how they could set up participatory processes in line with citizens' preferences. The results give them guidelines to tailor the design of their process in line with the preferences of citizens in general or of the target group(s). In doing so, the process may become more effective, as well as more inclusive and representative.

The remainder of this report is setup as follows. In chapter 2, an overview of the relevant literature regarding the topic is given, including a general introduction to citizen participation, a classification of different types of participants in civic participation, an identification of various approaches of citizen participation in urban planning and possible methods to measure preferences. The methodology is described in chapter 3, which indicates how the stated choice experiment is setup. Chapter 4 explains the results of this study, which are summarized and discussed in chapter 5. Chapter 6 gives an answer to the main question, evaluates the used method and gives recommendations for further research.

2. Literature review

This chapter reviews relevant literature regarding citizen participation. First of all, the theoretical background of citizen participation is described, introducing the concept in section 2.1. Secondly, an attempt is made to answer the four sub questions mentioned in the introduction, in order to define the factors that should be included in the research design. In section 2.2 and 2.3 relevant socio-demographic characteristics are identified that may affect citizens' willingness to participate and which could explain different preferences for participatory approaches. These different approaches and their characteristics are described in section 2.4. Section 0 explores which process characteristics affect citizens' willingness to participate. Lastly, section 0 gives an overview of methods to scrutinize the preferences for citizen participation. The results of this literature review are summarized in section 2.7.

2.1. Introduction to citizen participation

In this section first the definitions for citizen participation are explored. Then, the role of citizen participation in democracy and in urban planning are discussed to get a better understanding of the topic in general. This is followed by an overview of the advantages and disadvantages of citizen participation. Lastly, the problem of exclusion is further elaborated to gain a deeper insight into the main issue at hand.

2.1.1. The definition of citizen participation

There are many definitions for citizen participation, thus the term can be quite ambiguous. There is a common differentiation between political and societal participation, which together can also be referred to as civic participation (Barrett & Brunton-Smith, 2014; Rochira, De Simone, Mannarini, & Salvatore, 2019). Political participation refers to the participation of citizens in political decision-making and the creation of policy (Edelenbos et al., 2006; Rochira et al., 2019). Often, a distinction is made between conventional/formal and unconventional/informal political participation. Examples of conventional/informal political participation are voting or being part of a political organization, whereas unconventional forms include protesting, signing petitions, or boycotting. Societal participation encompasses pro-social activities, such as volunteering, assisting the well-being of others or being a member of non-political organization (e.g. religious organization, sport club, etc.) (Barrett & Brunton-Smith, 2014; Rochira et al., 2019). Citizen participation may be seen as a combination of political and societal participation, as it allows citizens to express their preferences and needs about public issues and to influence decision-making about policies in more direct ways (Rochira et al., 2019).

In this thesis, specific attention is paid to citizen participation in urban planning. It is chosen to focus on the definition that is given in the new Dutch Environmental and Planning Act, which describes citizen participation as "the involvement of stakeholders (citizens, businesses, civil society organizations and other governing bodies) at an early stage in the process of decision-making about a project or activity, with the aim to accelerate the process and make it run better, by retrieving the different interests or to let others think along/participate in plans and initiatives" (VNG, 2020; L'Ortye & Van Brunschot, 2019). Hence, there is a specific focus on early engagement in urban planning. Moreover, it is not about the formal process of participation (the ability to submit a point of view or objection as citizen) (Rijksoverheid, n.d.c), but can rather be seen as an addition to the formal moments. Examples of these more informal processes are information evenings, discussion groups, surveys or internet consultations (Ros, 2020). Figure 1 visualizes this focus.

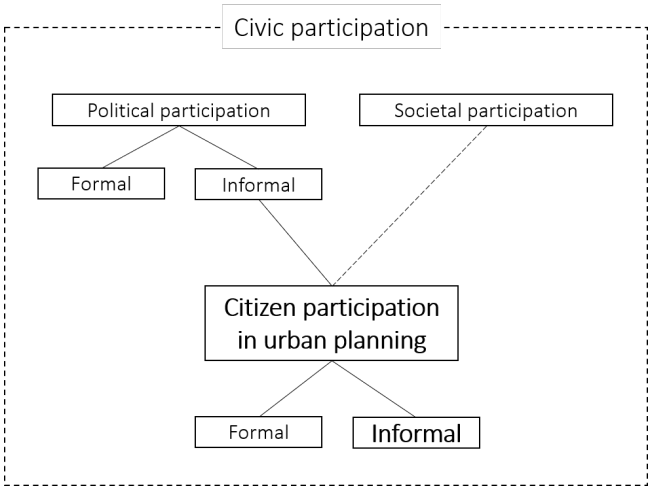

Figure 1 - Schematic overview of terminology of citizen participation

2.1.2. Citizen participation's role in democracy

Citizen participation has become an essential part of democratic processes. Theorists vary in their view on what the added value of citizen participation is to democracy. In general, four relationships between citizen participation and democracy can be distinguished in theory: inseparable, instrumental, additional and transitional (Klijn & Skelcher, 2007). The first two perspectives are rather negative and more critical towards the added value of citizen participation, whereas the last two are more positive.

First of all, some theorists believe that citizen participation and democracy are inseparable: citizen participation undermines the legitimacy and decision-making of representative organs. They believe that it contributes to the further decline of the formal representative democracy, as it compartmentalizes political decision-making, which erodes the power of elected representatives (Klijn & Skelcher, 2007; Mayer, Edelenbos, & Monnikhof, 2005).

Secondly, citizen participation can be instrumental: used by governments in the perspective of the representative democracy to give authorities more steering force (Edelenbos et al., 2006). In the instrumental perspective, more direct participation practices are used by the government as a means to structure the inputs (reinforcing dominant interests to create support) and outcomes (to realize the project) from policy processes, after the political projects have already been defined (Klijn & Skelcher, 2007). This can also be seen as manipulation, the participation process is a scam; the decisions have already been made beforehand (Mayer et al., 2005).

Thirdly, citizen participation can be seen as an addition to democracy: it creates additional connections between society and democratic institutions that do justice to the complexity of decision-making (Klijn & Skelcher, 2007). This complexity has increased due to complex interconnected policy problems, the variety of political participation (increase of unconventional forms, such as protests or boycotting) and the variety of information platforms and the rise of disinformation (Klijn & Skelcher, 2007). The creation of new institutions that address a single policy problem (e.g. redeveloping a neighborhood or improving waste recycling), allow citizens and business actors to be engaged in various phases of the policy process and increases the quality of information available about citizens' needs and preferences, thus increasing the legitimacy of political decision-making. Moreover, the increased interaction between the government and citizens can build social capital and increases the trust between the government and its citizens (Klijn & Skelcher, 2007).

Lastly, citizen participation is believed to be transitional: it will become more important as means of decision-making at the expense of traditional representative democratic organs. Due to globalization,

information technology and diminishing social ties, the representative democracy is losing its importance. Contrary to the inseparable theory, the transitional theory believes that complexity of decision-making due to the involvement of many actors creates a tension between the representative democracy and more direct ways of participation, which is inevitable. Therefore, this requires a different role from representatives, for instance as mediators and facilitators, to create support and strengthen legitimacy of their decisions (Klijn & Skelcher, 2007). The theories on participatory democracy and deliberative democracy underline this thought. According to participatory democrats, citizen participation in political decision-making is vital to democracy. The basis of the political system is the social contract, in which individuals work together and are free to make the laws by which they are governed. Deliberative democrats argue that deliberation should be regarded as the central mechanism for political decision-making, rather than voting. They believe that those that are affected by a collective decision should be included in the production of that decision and that this is the essence of democratic legitimacy (Michels, 2011).

2.1.3. Citizen participation in urban planning (in the Netherlands)

In this section, the role of citizen participation in urban planning is further explored and it is explained how citizen participation in urban planning is ensured within the Netherlands.

As mentioned before, citizen participation can be seen as an addition to the formal processes of democracy by creating new connections between the government and its citizens (Klijn & Skelcher, 2007). This is especially relevant in complex policy issues. This is one of the reasons why citizen participation is relevant in the context of urban planning. The process of urban planning and development are complex processes, with a variety of scales, phases and stakeholders and interrelated topics (e.g. livability and mobility) (Edelenbos et al., 2006; Janssen-jansen, Klijn, & Opdam, 2009). Although the goal of urban development is to improve the quality of the living environment, different stakeholders may have different views on what adds value to the living environment. There is a constant consideration about which interests should prevail, which could be of an economic, social, sustainable or aesthetic nature. In addition, decisions are made at different spatial and organizational scale levels, which complicates urban developments. Decision-making processes are also time consuming, during these years a lot can change. Moreover, the criteria for decision-making are not always clear, since urban planning has an inherently subjective character, thus creating objective criteria is difficult. To achieve spatial quality, not only the different spatial functions should be considered, but also the different actors that function within these spaces should be represented (Janssen-jansen et al., 2009).

Citizen participation has the potential to break down the hierarchies between local government, business actors, universities, citizens and other stakeholders (Leino & Puumala, 2020). The role of citizens in urban planning in the Netherlands has grown gradually over the years. Since the 1970s citizens have the possibility to react to plans formally. The level of influence differs per phase in urban planning (Denissen-Visscher, Schoen, & Grotefels, 2016). In the Netherlands four different phases of urban planning can be distinguished in general: the initiative, feasibility, realization and exploitation phase (see Figure 2).

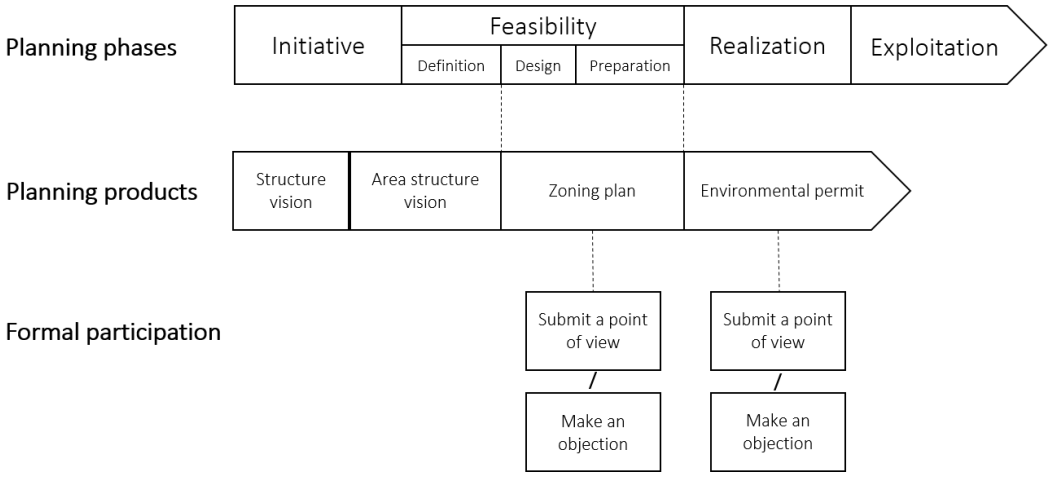

Figure 2 - Phases of urban planning with accompanying planning products and possibilities for formal participation (adapted from InfoMil, n.d.a)

In the initiative phase the main starting points for the urban development are captured, which are laid down in the municipal structure vision. In the structure vision various locations within an area are integrally considered and an order of precedence is established (Infomil, n.d.b). In this phase there is no possibility to make an appeal to a judge, because the structure vision is a strategic policy document (Infomil, n.d.c). The feasibility phase is the most intensive and complex phase of urban development and can be subdivided into a definition, design and preparation phase. Based on the urban design the zoning plan is created (Infomil, n.d.b). An initial zoning plan is presented to the public and citizens can submit a point of view to the municipality within a period of six weeks. After this period, the municipality should decide on the final zoning plan within twelve weeks, and they have an additional two weeks to announce the decision. After the final zoning plan has been established, citizens could make an objection within six weeks, after those six weeks the zoning plan will be executed (Rijksoverheid, n.d.c). The third phase is the realization phase, which entails the execution of the urban design. At the beginning of this phase an environmental permit is submitted. Citizens always have the possibility to object against the permit within six weeks after the approval (Rijksoverheid, n.d.d). Moreover, if an extensive procedure is needed, then the municipality needs to present a draft decision and citizens also have the possibility to submit a point of view (again within six weeks) (InfoMil, n.d.a). The last phase refers to the exploitation of the building.

In the new Environmental and Planning Act, municipalities are obligated, and private initiators are stimulated to create participatory processes as an addition to the formal processes. The goal is to improve urban planning decisions by collecting the different interests of various stakeholders or to let them cooperate in the planning. Citizen participation is thus seen as an addition, it is not an instrumental tool to create more support and it does not replace the law protection (VNG, 2020). Citizen participation by the municipality is guaranteed through three additional documents: the motivation obligation, participation notification and intention notification (L'Ortye & Van Brunschot, 2019). Figure 3 shows how these documents are related to the different phases of the urban development process.

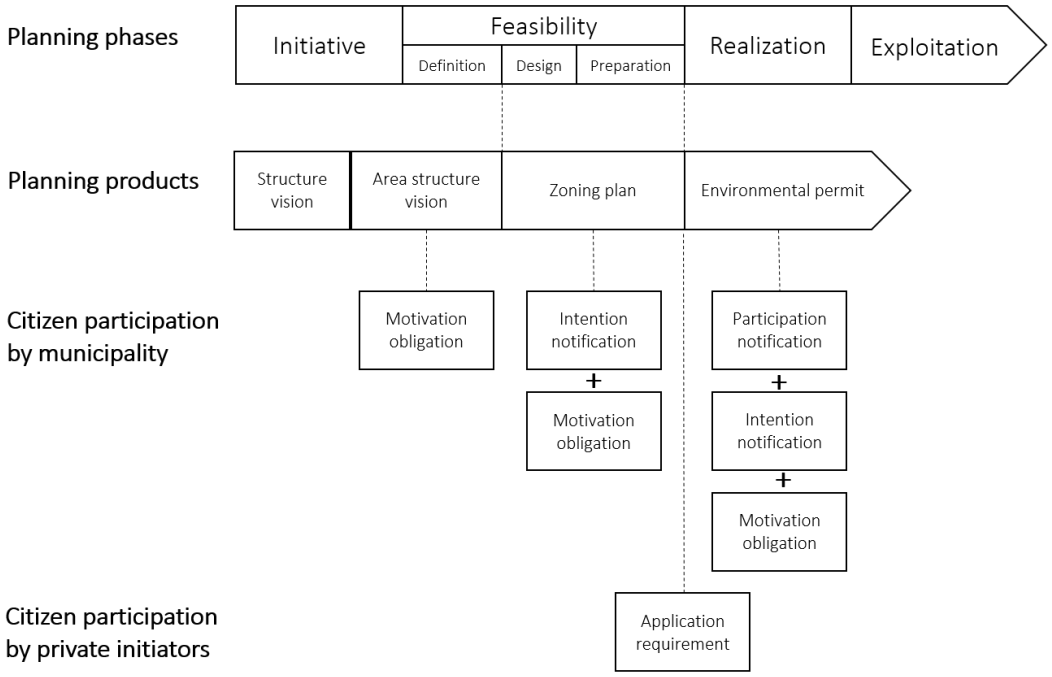

Figure 3 - Phases of urban planning with accompanying planning products and possibilities for citizen participation (adapted from InfoMil, n.d. and L'Ortye & Van Brunschot, 2019)

The motivation obligation should be added to the structure vision, zoning plan and environmental permit. In the motivation obligation the municipality states how citizens, business, societal organizations and governing bodies were involved in the preparation of the planning products and what the results of the participation process were. With an intention notification, the municipality informs stakeholders about their intention to adopt a zoning plan or to explore the possibility for a (future) development in the physical living environment (before submitting an environmental permit). In the latter, the notification should be more extensive. In addition, the municipality should state how participation will be designed during the project, which is laid down in the participation notification.

Citizen participation is also stimulated for private initiators of urban developments through the 'application requirement'. This should include if stakeholders were involved in the application process for the environmental permit, how they were involved and what the results are of the participation process. The initiator is responsible for choosing an adequate form of participation. The municipality can check the quality of citizen participation using three criteria: an equal (information) starting position of all stakeholders, adequate weighting of participation in integral decision-making and drawing up (substantive) assessment rules (L'Ortye & Van Brunschot, 2019).

2.1.4. The advantages and disadvantages of citizen participation (in urban planning)

The different perspectives discussed in section 2.1.2 implicitly included some potential democratic advantages and disadvantages of more direct citizen participation. Some practical advantages and disadvantages can be identified as well, which are also relevant in the context of urban planning. An overview of advantages and disadvantages can be found in Figure 4. These are further discussed in this section.

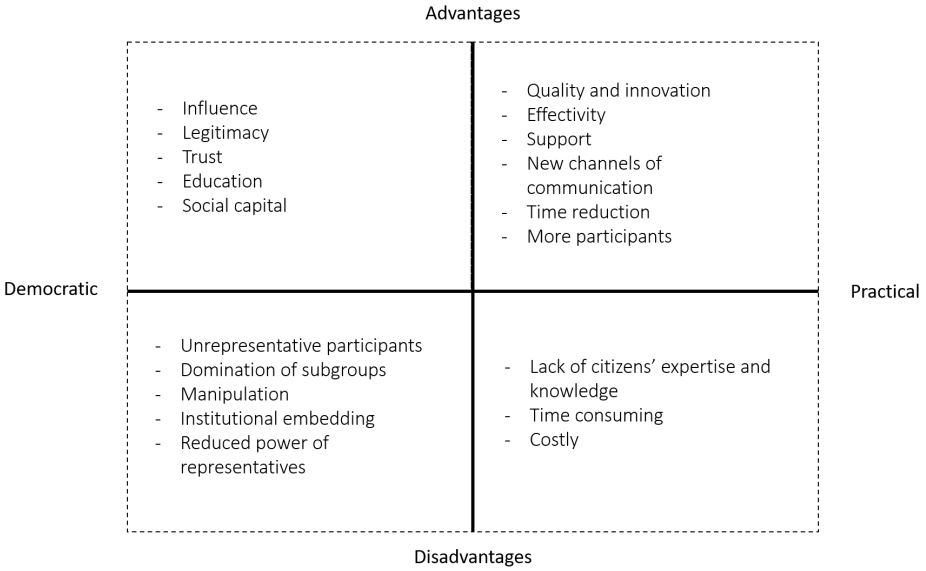

Figure 4 - Overview of advantages and disadvantages of citizen participation (Irvin & Stansbury, 2004; Michels, 2011; Radzik-Maruszak & Bátorová, 2015; Williamson & Fung, 2004)

First of all, through citizen participation, more citizens get a say in decision-making processes and they are able to influence the process in various phases (Irvin & Stansbury, 2004; Klijn & Skelcher, 2007; Mayer et al., 2005; Michels, 2011; Williamson & Fung, 2004). It allows citizens to express their demands and needs to the (local) government, which in turn helps the government to be better informed about the issues at hand (Irvin & Stansbury, 2004; Klijn & Skelcher, 2007). This increases the legitimacy of the decisions they take and can create innovative plans of a better quality (Irvin & Stansbury, 2004; Klijn & Skelcher, 2007; Michels, 2011). By increased (semi-formal) interaction between citizens and governments may improve the trust relationship between the government and its citizens (Klijn & Skelcher, 2007). Additionally, it makes it easier for governments to create support for decisions and avoid potential policy failures, which stimulates the implementation of policies/decisions and thus reduce time and costs (more effective process) (Irvin & Stansbury, 2004; Michels, 2011). Time and costs are also reduced by the inclusion of citizens and pressure groups, that may otherwise block plans via formal channels or legal processes that are time consuming and costly (Irvin & Stansbury, 2004; Visser, van Popering-Verkerk, & van Buuren, 2019). Lastly, during the participation processes, citizens can develop their civic skills, gain new knowledge and become more informed and interested in the democracy/political decision-making (Mayer et al., 2005; Michels, 2011). Moreover, citizen participation stimulates citizens to interact with other groups in society, which may help to build social capital (Irvin & Stansbury, 2004; Klijn & Skelcher, 2007).

There are also several potential disadvantages to citizen participation. First of all, a critical argument against citizen participation is that it undermines the decision-making power of elected representatives due to fragmented institutions making it unclear who exactly holds the power (Mayer et al., 2005). Secondly, participants of citizen participation processes are often not representative, which undermines the legitimacy of the decisions made. Moreover, a subgroup of citizens may be dominant in the process; often those who oppose the development, who shout the loudest and have the time to participate hold the power (Fung, 2004; Irvin & Stansbury, 2004; Mayer et al., 2005). Previous experiences in citizen participation has also shown that citizens often lack expertise and knowledge to take rational decisions, focused on the general wellbeing of society, resulting in too utopian demands and individual interests to prevail in the process (Radzik-Maruszak & Bátorová, 2015). Therefore, (policy) decisions may be biased and do not serve the common good. Moreover, they are harder to

reverse due to the involvement of citizens (Irvin & Stansbury, 2004). The decision-making process may be prolonged due to the difficult behavior of participants and increased tensions between residents and the government during citizen participation processes, thus increasing the costs (Radzik-Maruszak & Bátorová, 2015). Instead of minimizing the threat of long-term legal processes, citizen participation may backfire. Moreover, the costs for setting up a participation process are already high, since it costs time to inform/educate the citizens to be able to participate, whereas a group of experts that are already informed could also make the decision. The participation costs could be at the expense of the costs for implementing the solutions (Irvin & Stansbury, 2004). Lastly, as mentioned before, participation can be manipulative. The initiators of participation processes already defined the project beforehand, thus the participants lack actual decision-making power (Arnstein, 1969; Mayer et al., 2005). In this case, participation is pointless for citizens and may leave them dissatisfied (Irvin & Stansbury, 2004). However, this lack of power for citizens can also be unintentional. It may be difficult to transform the input of citizens into concrete policies (institutional embedding), for instance due to the lack of (financial) means or support from other parts of the government (Edelenbos et al., 2006).

The advantages and disadvantages are dependent on the design of participation process. For instance, if there is sufficient support for the participation process and clear goals and conditions are set, a lack of institutional embedding can be avoided. In addition, creating participation rules at the beginning of the process, may avoid tensions between the government and the citizens in the participation process (Edelenbos et al., 2006). Another example is that participants could be randomly selected from society, to avoid the unrepresentativeness of participants (Williamson & Fung, 2004).

2.1.5. The lack of inclusivity and representativeness in citizen participation

One of the main barriers for successful citizen participation, is that participation processes often exclude certain members of society, which results in an unrepresentative process. This is problematic, because one of the aims of citizen participation is to include all voices of society, to create fairer and more effective planning processes (Fung, 2005) and improve the quality and legitimacy of the outcomes (Christensen & Schoultz, 2017). In this section it is further explored what the reasons are that citizens (don't) participate.

First of all, structural inequalities in society influence whether or not citizens participate (Mayer et al., 2005). Due to the increased complexity of governance, powerholders tend to exclude the weakest and most vulnerable groups/individuals from deliberation (Bang, 2004). Fung (2004) mentions that "participatory processes often exclude members of racial and ethnic minorities, have fewer women than men, fewer working-class people than professionals, are often age-biased, and rarely involve people with disabilities" (Fung, 2004, p. 49). On the other hand, the people who do participate are often those with political know-how, time and professional knowledge (Agger, 2012; Fung, 2004). Structural inequalities make it difficult to reach more vulnerable citizens. In order to include them, special attention should be paid to the obstacles that they may experience (Fung, 2004), for instance through giving a financial compensation, providing equal information, creating equal opportunities to be heard or digital participation (Roberts, 2004).

Secondly, whether citizens participate depends on their capacity and motivation to participate, and whether they are being invited personally to participate. Having the capacity to participate refers to whether citizens have the civic skills, availability of time and the financial means to participate (not having the capacity can thus be an obstacle to participate). However, even when citizens do have the resources, they should also have the motivation to participate. There are citizens who rather spend their time on other activities (Schlozman, Brady, & Verba, 2018). According to Visser, van Popering-Verkerk, & van Buuren (2019) citizens have two types of motivations to participate: instrumental and

democratic. Instrumental motives are that citizens may improve the outcomes of projects, to create financial advantages or to train their civic skills. Moreover, citizens may see it as their democratic right to directly influence decisions in the public sector and see participation as a possibility to actively fulfill this right (democratic motivation). However, participation does not only depend on whether citizens are interested to engage in politics, they should also have the perception that they are able to influence policies/projects. Moreover, specific topics may excite citizens to participate, because they are interested in the topic or the topic is controversial, or because they have a direct stake. Additionally, citizens should be invited personally to participate (e.g., via their social network or directly), as this makes it more likely that they will engage. Those who are socially connected, have a higher education or income are more often asked to participate (Schlozman et al., 2018).

Lastly, citizens have different preferences for participation approaches. Although there seems to be a common understanding of the differences between those that are involved and those that are not, the division between participants and non-participants seems to be too simple. Bang (2004) argues that due to the individualization of politics, participation has fragmented. Citizens participate on their own terms, thus there is a diversity in the types of political participation (Bang, 2004). Several researchers support this view of fragmentation and argue that the level of involvement is not just a case of inclusion or exclusion, but there are many ways of participation and thus a broader range of engagement. They found that different types of participants can be identified, that have distinct preferences for participatory approaches and can be characterized by certain personal characteristics (Agger, 2012; Bang, 2004; Hustinx, Meijs, Handy, & Cnaan, 2012; Larson & Lach, 2008; Van Houwelingen, Boele, & Dekker, 2014; Li & Marsh, 2008).

In conclusion, citizen participation in urban planning allows for early engagement of the stakeholders, which can increase the quality and innovativeness of urban development and improve the effectivity and efficiency of the process. Although citizen participation allows more citizens to be involved, it is often noticed that a large part of society does not engage. Therefore, participants in urban planning processes are often not representative, which undermines the legitimacy of the decisions that are made during urban planning processes. Citizens do not engage due to structural inequalities, a lack of capacity or motivation to participate, because they are not invited to participate or because the design of the processes do not suit the various preferences of citizens. This study specifically focuses on this last issue. It is assumed that if citizen participation processes will be designed in such a way that it suits the various preferences of citizens, they will be more willing to participate and thus a more representative process could be achieved. In the following chapter the various types of participations that are defined in the context of civic participation are further described.

2.2. Which types of participants exist in civic participation and how can they be characterized?

Several studies have argued that different types of participants can be identified that participate differently in politics and society. This can also be referred to as "civic participation". Moreover, these types of participants are characterized by certain sociodemographic characteristics. Table 1 gives an overview of the different types that were found in the literature. In this section these different types of participants, their preferences for participation and their specific personal characteristics are elaborated.

Table 1 - Overview of types of participants and their characteristics

Type of participant	Author	Who are they?	Motivation	How do they participate?
Engaged citizens				
Political activists	Li & Marsh (2008)	– Part of political organizations or trade unions – Middle-aged – Male – Married – Service class – Highly educated		– Conventional political participation
Expert citizens	Bang (2004); Li & Marsh (2008); Agger (2012)	– Confidence in political abilities – Part of societal organization – Have expertise in influencing politics – Negotiate and dialogue – Middle-aged – Married – Highly educated – Service class, student, intermediate	Political influence	– Concrete projects – Full time – Prefer traditional forms of political participation
Everyday makers	Bang (2004); Li & Marsh (2008); Agger (2012)	– Individuals – Engaged in community – Young – Female – Not married – Service class, intermediate, student – Highly educated	– Political engagement – Personal growth	– Concrete projects – Local level – Part time
Social entrepreneurs	Agger (2012)	– Engaged in community – Creative and innovative – Listen and respond to needs of community – Strong social network	Personal cause	– Full time – Projects in voluntary sector

Type of participant	Author	Who are they?	Motivation	How do they participate?
Disengaged/passive citizens				
Young people	Agger (2012)	Young	Disinterested in conventional politics	– Looser and less hierarchical informal networks – Alternative informal forms of political participation
Civic omnivores	Hustinx et al. (2012)	– Male – High non-material values – High general trust in people – Encouraged to volunteer		– Combination of (in)formal and (un)conventional forms of civic participation
Monitorial citizens	Agger (2012); Hustinx et al. (2012)	– Highly educated – Resourceful – Interested and critical towards politics – Female – Watch television entertainment	– Disinterest – Priority for other activities – Satisfied with representatives	– Minimum surveillance – Participate individually and intermittent – Avoid routine-based or institutionalized forms of participation – Prefer informal forms of participation
Classical volunteer	Hustinx et al. (2012)	– Male – Higher material value – Encouraged to volunteer		Volunteer in societal organizations
Non-participants	Li & Marsh (2008); Hustinx et al. (2012); Barrett & Brunton-Smith (2014)	– Young (<25 years old) – Old (> 60 years old) – Female – Never married or once married – Ethnic minority – Working class – Low educated – Low/middle income		

First of all, Bang (2004) identifies two new types of participants that have occurred as a response to the problem of exclusion: "expert citizens" and "everyday makers". They tend to participate in small politics and focus on concrete projects that they care about and aim to realize this through action, rather than focusing on rational decision-making. There is also an important distinction between the two types. Expert citizens are often part of societal organizations and participate full-time in projects that reflect their lifestyle. They are confident in their political abilities, have the expertise to influence politics and communicate through negotiation and dialogue instead of antagonism and opposition. Everyday makers are individuals, not a member of an interest group or social movement, that participate part-time in very concrete local projects that are close to their everyday life. They participate to feel engaged and to develop themselves (Agger, 2012; Bang, 2004; Li & Marsh, 2008).

Li & Marsh (2008) argue that besides the expert citizens and everyday makers, there are two other types of participants that should be included. First of all, there are people that engage in conventional politics, by being part of political organizations or trade-unions, which are identified as "political activists". Secondly, there are people that do not participate in any situation ("non-participants"). They have empirically tested whether or not these types actually exist and found evidence that there are different types of participants that can be characterized by sociodemographic-, cultural- and political variables. From their results it becomes distinct that citizens with a high level of education and class are the ones that participate, whereas the ones with a lower level of education and class are the non-participants. Ethnicity and religion play a role in defining the non-participants as well. In general, class and educational differences had the most effect, whereas ethnic differences had relatively little effect. With regard to political variables, Li and Marsh found that political trust, efficacy (feeling that one can influence decisions on local and national level), contact (with officials) and voice (participation) differed between the types of participants. The more engaged citizens have more trust in politics, have a higher efficacy and are more politically active than the less engaged citizens (Li & Marsh, 2008).

Agger (2012) also acknowledges Bang's types to exist, but adds three extra types of participants. First of all, in the active group, she also identifies the "social entrepreneur". These are creative and innovative citizens, who can easily identify the needs and opportunities in their community and translate those into action. They have a strong social network and are engaged in community. They are often driven by a personal cause and tend to engage full-time in specific projects that they want to contribute to. They do not have specific sociodemographic characteristics, but rather come from all areas of society (Thompson, 2002). Secondly, she argues that there are different types of non-participants, namely the "monitorial citizens" and "young people". Monitorial citizens are politically and societally interested, but consciously choose not to participate, due to disinterest, other priorities or because they have a high level of trust in politics. They monitor the system and participate only when they think it is necessary and not in routine-based or institutionalized forms (Agger, 2012; Hustinx et al., 2012; Hooghe & Dejaeghere, 2007). Young people (14 to 24 years old) do not participate because they are not interested in conventional politics, but rather want to participate in looser and less hierarchical networks or via alternative informal forms of participation (Agger, 2012).

Hustinx et al. (2012) specifically examined the different types of civic participants among young people and found much more diversity. The first type they could identify are disengaged students, that are underrepresented in all types of activities (similar to the non-participants of Li & Marsh (2008)). Then there are the "classical volunteers" and "humanitarian citizens", that are disengaged in political participation, but do volunteer in societal organizations. Hustinx et al. (2012) also identified the "monitorial citizen", who combines various unconventional forms of civic participation, but does not participate in formal networks. Lastly, there is the "civic omnivore" that combines and integrates all forms of civic participation, whether those are conventional or unconventional. They also empirically tested which sociodemographic characteristics defined these groups and found that gender, income, individual values, general trust, family tradition of volunteering and media use significantly differed among the groups. Age was not found to play a significant role.

Barrett & Brunton-Smith (2014) performed similar research and discovered four distinct subgroups, based on their patterns of civic participation. First of all, there are those who are inactive in political as well as societal engagement (similar to the aforementioned non-participant group). These are more likely to be young, female and from an ethnic minority group. Secondly, there are citizens that participate both politically and societally, who are characterized by being older, male and not from an ethnic minority group. This group can probably be related to the political activists or expert citizens groups. Thirdly, young citizens from an ethnic minority are also likely to engage in non-conventional

political activities and are societally engaged. However, it should be noted that ethnic minorities are more likely to be inactive than to participate in this way. This classification could be compared to the "everyday maker". Lastly, they define a "voting-only" group, but this is not relevant for the current study.

In conclusion, these studies show that there is a variety in how people (want to) participate, and that certain personal characteristics define these different types of participants. It can be concluded that there are several factors that distinguish these types, namely sociodemographic characteristics (age, gender, level of education, income, marital status, ethnicity and religion), social factors (being part of a political or societal organization, being engaged in community, having a social network), political factors (political expertise, political trust, political efficacy, political interest, news consumption) and participation factors (motivation to participate, frequency of involvement, scale-, content- and concreteness of project, type of activity/form of participation and individual or collective participation). The role of these various factors in participation are further explored in the following chapter.

2.3. Which personal factors influence citizens' willingness to participate?

Previous studies about civic participation have shown that the level of participation depends on sociodemographic factors, political factors, social factors and psychological factors (DeSantis & Hill, 2004; Font, Wojcieszak, & Navarro, 2015; Gherghina & Geissel, 2017; Larson & Lach, 2008; Li et al., 2020b). In this section it is further explored how these are related.

2.3.1. Sociodemographic factors

As mentioned before, it is often assumed that those with the resources (time, knowledge, money, energy) are the ones that participate the most (Agger, 2012; Vicente & Novo, 2014; Williamson & Fung, 2004). Moreover, old and young people, females, religious and ethnic minorities and working-class people are often excluded from participation (Roberts, 2004; Williamson & Fung, 2004). Hence, it could be expected that age, gender, ethnicity and religion, the level of income and education and the type of job play a role in citizens' willingness to participate. In this section these different sociodemographic factors are further explored.

2.3.1.1. Age

It is not always clear if and how age affects civic participation levels. First of all, several empirical studies found that older people are more inclined to participate and young people are often disengaged (Bozogáňová & Výrost, 2019; Campbell, 2013; DeSantis & Hill, 2004; Gherghina & Geissel, 2017) . For instance, DeSantis & Hill (2004) found that age had a positive effect on the probability that citizens would attend town meetings (a specific type of direct citizen participation). Young people (18 to 25 years old) had the lowest probability to attend, whereas older people (more than 61 years old) were most likely to participate. They explained this in the sense that older people have more time to participate, and they have gained more interest and experience in the political world. Moreover, they have a developed social network and might have resided longer in the neighborhood, which both might increase their concern for the community and thus increase their interest to discuss community problems in town meetings. On the other hand, Christensen & Schoultz (2017) found that age had a significant negative relationship with the support for deliberation. Hence, older people are less supportive than younger people for direct citizen participation. However, Goldberg, Wyss, & Bächtiger (2020) found that age did not have a significant effect on citizens' preferences for democratic processes. The results of some studies about civic participation suggest that the effect of age depends on the type of participation. For instance, Gherghina & Geissel found that age has a significant positive effect on actual political participation for all modes of participation, whereas age did not always have a significant effect on the willingness to participate. For the more deliberative mode of participation no effect was found for age. Chang (2017) and Shelton & Garkovich (2013) only found a significant effect for some forms of political participation (contacting public officials, working in political campaign and voter turnout).

In the context of urban planning, the findings are also inconsistent. First of all, Radzik-Maruszak & Bátorová (2015) indicated that most participants in urban governance were older people, because they have the time to participate. Middle-aged people with young kids cannot make the time to come to meetings in the evening. There are however also some studies that found a curvilinear relationship between age and citizen participation. Van den Berg, Giest, Groeneveld, & Kraaij (2020) found that the probability that people participate in participatory budgeting for their neighborhood increased when they got older, but that these effects diminished at the age of 65-70. Also the results of the study by Shan (2012) show that older people (more than 50 years old) were less willing to participate in the decision-making of urban green spaces, whereas middle-aged citizens (30 to 49 years old) had the highest willingness, thus indicating a curvilinear relationship. On the contrary, several studies did not find a significant effect of age on participation in urban planning (Larson & Lach, 2008; Vicente & Novo,

2014; Li et al., 2020b; Fors, Wiström, & Nielsen, 2019). Li et al. (2020b) did not find a significant effect of age on the general intention to participate online, but they did find that age significantly influenced the preferences for urban planning content. For instance, people who are older prefer to participate in planning decisions (one of the highest levels of participation), which could be explained due to their life experience and social status. This again indicates that age has an influence on the preferred approach for participation.

2.3.1.2. Gender

Gender is often assumed to have an influence on the propensity of political participation in general and in participatory processes (Christensen & Schoultz, 2017). According to Fung (2004) and Roberts (2004) women are less involved in participatory processes than men. Working mothers in particular do not find the time to participate (Fung, 2004). In empirical research it has also been found that females are less engaged. Bozogáňová & Výrost (2019) found that males are more politically active than females. According to Barrett & Brunton-Smith (2014) males are politically and civically active, whereas females are more likely to be inactive. Similarly, Vicente & Novo (2014) found that women are less likely to participate in society and politics online.

There may also be preferential differences for forms of participation with regard to gender. Hooghe, Oser, & Marien (2016) found that females are more likely to be an "engaged citizen", who were more interested in non-conventional forms of political participation. Moreover, males were more likely to be engaged as political activists, civic omnivores or classical volunteers, whereas females were more likely to be everyday makers or monitorial citizens (Hustinx et al., 2012; Li & Marsh, 2008). These subgroups all had different preferences for participatory approaches. In general, it could be said that males were drawn to more conventional forms of political participation (e.g., voting, being a part of a political organization), whereas females were more attracted to non-conventional forms (e.g., signing a petition, protesting). The results of Goldberg et al. (2020) showed that women were more supportive for deliberative participation (intensive face-to-face participation) and direct-democratic approaches (voting) than men.

However, in the context of urban planning, several studies did not find a significant influence of gender on participation (Christensen, 2020; DeSantis & Hill, 2004; Larson & Lach, 2008; Li, Feng, Timmermans, Li, et al., 2020; Li et al., 2020; van den Berg et al., 2020).

2.3.1.3. Level of education

It is often argued that higher educated citizens are more inclined to participate, because they have the skills and knowledge to actually do so. Lower educated citizens are often discouraged and intimidated to participate because they lack this (Radzik-Maruszak & Bátorová, 2015; Roberts, 2004). Several studies indeed found that citizens with a higher level of education were more likely to participate in politics (Bozogáňová & Výrost, 2019; Campbell, 2013; Chang, 2017; Shelton & Garkovich, 2013). Only a few studies did not find any evidence for a relationship between level of education and political participation (DeSantis & Hill, 2004; Gherghina & Geissel, 2017).

Also in the context of urban planning the level of education seems to play a role (Larson & Lach, 2008; Li et al., 2020; Shan, 2012). For instance, Shan (2012) found that the willingness to participate in the planning, management and design of urban green spaces tended to increase when education levels became higher. Similarly, Li et al., 2020 found that people with a higher level of education were found to be more willing to participate in urban planning. In addition, they found that preferences for participation differed among different levels of education. Citizens with a higher level of education preferred to participate in planning decisions (higher level of involvement).

2.3.1.4. Income

It is often suggested that people with a higher income are more likely to attend participatory processes, because they have the resources to do so. For people with a low income, participation may be too costly (e.g. they might not have the money to travel to public meetings) (Fung, 2004; Roberts, 2004). However, various empirical studies have not found a significant effect of income on the level of participation (Campbell, 2013; Chang, 2017; DeSantis & Hill, 2004; Vicente & Novo, 2014). It has been argued that socioeconomic status influences civic and political participation, because this is correlated with the level of education of citizens (Schlozman, Verba, & Brady, 2013). Hence, it could be that no significant results are found for income, because the level of education is a more prominent predictor of participation. Still, some studies did report that income influenced patterns of civic participation and participation in urban planning. The case study by Matamanda & Chinozvina (2020) revealed that citizens with a high income participated in urban development, because they had the access to information and financial resources, whereas poorer citizens lacked the capacity to participate or were not even aware of the different platforms through which they could participate. Larson & Lach (2008) found that participants had a higher income than non-participants in urban management. Similarly, the results of Hustinx et al. (2012) revealed that students with a higher income were more likely to be engaged civically. In the results from Gherghina & Geissel (2017) income had a significant effect on all modes in actual political participation, but not on the more direct/deliberative modes for intentional political participation. Hence, with regard to the willingness to participate, income seems to have no significant influence. This could indicate that more practical issues might constrain lower income citizens from participating, rather than that they are unwilling.

Income may also affect the preferences for certain participatory approaches. Shelton & Garkovich (2013) observed that income had a significant effect on political participation, but only for specific forms (contacting local public officials and signing a petition). Li et al. (2020b) did not find income to affect the general intention to participate online in urban planning, but when looking at preferences, income did play a significant role. Citizens with a higher income preferred to participate in online discussions regarding regional or city planning. People with a low income had a higher intention to participate in neighborhood planning (Li et al., 2020)

2.3.1.5. Ethnicity and religion

It is commonly mentioned that ethnic and religious minorities are often excluded from participation, which is partially due to structural inequalities, that make participation opportunities difficult or costly for these groups (Fung, 2004). However, there are only a few empirical studies that actually examined the relationship between ethnicity and participation. Vicente & Novo (2014) scrutinized the factors that influence engagement in online participation and observed that foreigners were less likely to participate online. In the research of Campbell (2013), regarding political participation, no significant relationship between ethnicity and the level of participation was found. The results of Barrett & Brunton-Smith (2014) showed that ethnic minorities were indeed more likely to be disengaged, or they participated in non-conventional forms of participation. Li & Marsh (2008) found that there were also differences between minority groups with regard to preferences for participation. Moreover, Black African citizens were likely to be political activists and expert citizens (two of the more engaged groups) and Chinese were more likely to be everyday makers. Hence, they preferred different participatory approaches, as political activists and expert citizens preferred more formal participation processes, whereas everyday makers preferred non-conventional forms. Pakistani and Bangladeshi were the most likely to be disengaged. This shows that the relationship between ethnicity and participation may be more complex than first expected. However, according to Li & Marsh (2008) religion was a stronger predictor for differences in participation than ethnicity. They found that Muslims and Sikhs were the most likely to be disengaged. Chang (2017) did not find any significant evidence for religion to play a

role in political participation. In addition, Schlozman et al (2013) argue that the differences in political participation on the basis of race or ethnicity can be largely explained due to the differences in the level of education and income between different races and ethnicities. Hence, the level of education and income may be stronger predictors.

2.3.1.6. Length of residence

With regard to the length of residence, DeSantis & Hill (2004) suggested that due to the longer residence of older people in the community, they are more likely to have a strong social network, which could result in a higher interest to participate in discussions about community problems. However, they did not specifically include length of residence as a factor in their research. Shelton & Garkovich (2013) argue that longer durations of residence could contribute to stronger community ties and therefore result in higher civic participation. In their study they expected that this was the case for citizens that lived in rural areas, but no significant result of the place of residence was found. The results from interviews in the study by Fors et al. (2019) indicated that residents expected that long-term residents participated more than newcomers, which was also confirmed by their statistical analysis. Li et al. (2020b) also included the length of residence in their research and found a significant effect, but with the opposite result: residents who lived for fewer than five years in the city were more likely to participate. Citizens' length of residence also impacted their preferences for the content participation approaches: people who lived longer than 5 years in the city preferred to be engaged in ecological environmental and infrastructural planning, whereas temporary residents wanted to be engaged in cultural topics. Larson & Lach (2008) did not find length of residence to affect participation in urban management. Still, there is some evidence that the length of residence has an impact on participation in urban planning.

2.3.1.7. Employment status and type of job

According to Fung (2004), working-class people are more often excluded from participatory processes than professionals. Roberts (2004) also mention the unemployed and the underclass as oppressed groups. Some empirical studies included employment status and the type of job as explanatory variable. Although, most studies could not find a significant effect for employment status (Campbell, 2013; Chang, 2017; Christensen & Schoultz, 2017), Vicente & Novo (2014) obtained from their results that unemployed people were more likely to participate online. Although Li et al. (2020b) did not find a significant impact on the general intention to participate online, they did find employment status to affect the preference for specific tools. Workers preferred websites and professional software, whereas students and retirees preferred social media tools. Li et al. (2020b) also examined the effect of the type of job. Again, they did not find a significant effect for the type of job with regard to the general intention to participate online, but they did find it to play a role in preferences with regard to the method used in the participation process. People that had a job related to urban planning were more willing to use professional software and social media tools, whereas people that did not have a job related to urban planning preferred normal websites and microblogs.

2.3.2. Political factors

Various studies found that different political factors, including political efficacy (internal and external), institutional trust and political interest play a role in citizens' willingness to participate in politics (e.g. Barrett & Brunton-Smith, 2014; Christensen & Schoultz, 2017; Gastil & Xenos). It is expected that these may also play a role in the context of urban planning. The relationship between the political factors and the willingness to participate is further worked out in this section.

First of all, internal and external efficacy are one of the most commonly researched political attributes and are often found to affect participation. Internal efficacy refers to the perception that one

understands civic and political affairs and can act upon it (Barrett & Brunton-Smith, 2014; Gastil & Xenos, 2010). Barrett & Brunton-Smith (2014) investigated the role of internal efficacy in political participation. Their results showed that higher levels of internal efficacy led to higher levels of all the types of political participation. Several studies confirm these results (Gastil & Xenos, 2010; Jennstål, 2016; Shelton & Garkovich, 2013). However, Shelton & Garkovich (2013) only found this to be true for non-conventional forms of participation (e.g., rallies and protests). Additionally, Jennstål (2016) reported that internal efficacy interacts with the personality trait extraversion. Christensen & Schoultz (2017) specifically found that a higher internal efficacy leads to a higher support for deliberative practices. Hence, it can be assumed that internal efficacy also plays a role in citizen participation. The only study that did not obtain a significant relationship of internal efficacy with participation is the one from Goldberg et al. (2020).

External efficacy is one's perception that public and political institutions are responsive to citizens' needs and that citizens have an influence on decisions made by officials (Barrett & Brunton-Smith, 2014; Gastil & Xenos, 2010; Shelton & Garkovich, 2013). For external efficacy, the findings are mixed. Goldberg et al. (2020) found that a lower external efficacy led to more involvement in politics in general. This could be related to a certain distrust towards or dissatisfaction with the government, which made them want to be involved in any kind of participation. On the contrary, the results of Barrett & Brunton-Smith (2014) showed that high levels of external efficacy related to high levels of increased involvement in conventional and non-conventional forms of participation. This is also confirmed by Gastil & Xenos (2010). Christensen & Schoultz (2017) did not find a significant relationship between external efficacy and the support for deliberative practices.

Secondly, political participation is related with institutional trust. Some may argue that when citizens have lower trust in their government, they will be more inclined to participate in politics, so they can make a change. For instance, Hooghe et al. (2016) found that engaged citizens had low levels of institutional trust. However, some empirical studies reported a different relationship. Both Bozogáňová & Výrost (2019) and Shelton & Garkovich (2013) obtained from their results that the higher citizens' level of political trust, the more likely citizens were to participate. Christensen & Schoultz (2017) did not find a significant effect of institutional trust on the support for deliberative practices. According to Barrett & Brunton-Smith (2014), institutional trust may be related to external efficacy.

Lastly, political interest has also been found to affect the willingness to participate. Gherghina & Geissel (2017) found that political interest had a significant positive effect on both the intention to participate and actual participation. Similarly, the results of Barrett & Brunton-Smith (2014) showed that the more interested citizens are in politics, the more they are willing to participate. Moreover, political interest was found to be correlated with internal efficacy.

2.3.3. Social factors

There are also social factors that seem to play a role in civic participation, although they are studied less frequently than sociodemographic or political factors. Several studies have shown that societal engagement, social capital and community perceptions affect the level of engagement of citizens (Bang, 2004; Barrett & Brunton-Smith, 2014; Campbell, 2013; DeSantis & Hill, 2004; Foster-Fishman, Pierce, & Van Egeren, 2009; Gherghina & Geissel, 2017).

First of all, according to Bang (2004), people tend to be more engaged in political participation, when they are engaged in community or part of a societal organization. Campbell (2013) confirms this argument in an empirical research into the relationship of social networks and political participation. Gherghina & Geissel (2017) found that civic engagement indeed had a positive influence on political participation.

Secondly, Schlozman et al. (2018) argue that citizens with a larger social capital are more likely to be invited to participate and therefore participate more often. Campbell (2013) also found that citizens with a larger social network were more likely to participate. They also reported that the more frequent interactions citizens had within that network, the higher the level of participation. The results of DeSantis & Hill (2004) support this finding, especially when community problems or political issues are discussed with family and friends. Thijssen & Van Dooren (2016) measured social capital by looking at the activity levels of neighborhood associations. They found that the more activities are organized by neighborhood associations, the more likely citizens were to report problems in the public domain to the municipality. With regard to urban planning, Fors et al. (2019) showed that participation in urban management increased when one's neighbor participated in co-management. Hence, neighbors can inspire each other to participate.

Lastly, community perceptions may play a role in societal participation. Sense of community is the degree of perceived social bonding between residents (Foster-Fishman et al., 2009). Foster-Fishman et al. (2009) examined the relationship between sense of community, norms of activism, collective efficacy and citizen participation. Sense of community had a positive indirect effect on citizen participation, via norms for activism (defined as "resident's perception that people in the neighbourhood can be counted on to engage in social change activities" (Foster-Fishman et al., 2009, p. 560)). They also found collective efficacy, which is the "degree to which residents believe that they can make a change happen by working together" (Foster-Fishman et al., 2009, p. 560) affects citizen participation in the same indirect way. Only norms of activism directly affected citizen participation.

2.3.4. Psychological factors

Although it is often underexamined, some researchers have argued that psychological factors also affect participation. Some factors that have been found to impact participation are personality traits, generalized trust, motivation to participate and digital and organizational skills (Barrett & Brunton-Smith, 2014; Bozogáňová & Výrost, 2019; Font & Alarc, 2011; Foster-Fishman et al., 2009; Jennstål, 2016; Vicente & Novo, 2014)

First of all, some studies found personality traits to play a role in participation. Font & Alarc (n.d.) studied the effect of the "big 5 personality traits" (agreeableness, openness to experience, extraversion, neuroticism and conscientiousness) on the preferences for four democratic models (consultations to citizens, expert democracy, assembly democracy and representative democracy). Their results showed that citizens that are more open to experience showed a significantly larger level of support for direct democratic processes. Bozogáňová & Výrost, (2019) also found that citizens that were more open to change were more likely to participate politically. Moreover, their results showed that self-transcendence, conservation and self-enhancement played a significant role. Citizens with higher levels of self-transcendence had higher levels of participation, whereas higher levels of conservation and self-enhancement were related to lower levels of participation. In the study of Jennstål (2016) several personality traits were examined (extraversion, emotional stability, conscientiousness, agreeableness and openness). She specifically looked at how these affected citizens' willingness to participate in deliberative practices (mini publics). In her study, extraversion and openness were found to be positively associated with the willingness to participate, whereas conscientiousness had a negative relationship. The other traits did not have a significant effect. It should be noted that openness in this study had a broader definition than openness to experience or change; they refer more to a person's communication style, namely "the ability to confront individuals and situations with an open, flexible mind, interested in exploring both inner and outer worlds and engage in divergent thinking" (Jennstål, 2016, p. 5).

Secondly, generalized trust, which is the trust citizens have in other people, has been associated with different patterns of participation. Hooghe et al. (2016) found that citizens that are more engaged, have higher levels of generalized trust, which is also supported by the results from Barrett & Brunton-Smith, (2014). The results from Hustinx et al. (2012) could be interpreted similarly, since they found that students with higher levels of generalized trust were more likely to belong to the group of "civic omnivores". This group was characterized by their preference for mixed participatory approaches and are one of the most engaged groups. Hence, it can be expected that generalized trust influences the level of participation and the preferences for approaches.

Thirdly, as already mentioned in the subgroup paragraph, personal motivations and goals can influence the patterns of participation (Agger, 2012; Bang, 2004). Examples of motivations are to have political influence, to gain experience and to develop oneself (Agger, 2012). It also seems to play a role in the willingness to participate in urban planning. Fors et al. (2019) found that participation in urban public woodland management was mostly driven by citizens' personal interest in gardening. Hence, citizens may be more motivated to participate if they have an interest in urban planning. Moreover, Thiel, Ertiö, & Baldauf (2017) found that curiosity was the main motivation for citizens to test an online participation application, followed by wanting to be informed about urban planning. The main motivation to continue using the app was to give an opinion on urban planning or to report issues regarding urban planning.

Lastly, personal skills may influence citizen participation. Respondents from the study of Larson & Lach (2008) indicated that participants were similar not only in terms of sociodemographic characteristics and personalities, but also in skills. For instance, they mentioned that leaders of participation groups had the ability to affect change. Foster-Fishman et al. (2009) indeed found that citizens' perceived ability to affect change (reported as organizing skills), significantly affected the level of citizen participation. Moreover, in online participation, digital skills were found to be strong predictors. They played the main role in explaining political and social engagement, rather than sociodemographic characteristics (Vicente & Novo, 2014).

In conclusion, various sociodemographic, political, psychological and social characteristics were found to affect citizens' willingness to participate in politics, society and/or urban planning. With regard to the sociodemographic characteristics, the age, level of education, income, length of residence and employment status and type of job may play a role in urban planning and that gender and ethnicity played a role in civic participation. Secondly, political characteristics such as internal and external efficacy, political interest and institutional trust were found as predictors for the willingness to participate in politics. Lastly, different psychological factors and social factors were found to play a role in civic participation, namely community engagement, social capital, community perception, personality traits, generalized trust, personal motivations and personal skills were found to be associated with the willingness to participate.

2.4. How are citizen participation processes setup and how can they be characterized?

In this section it is explored how citizen participation processes are generally set up, which can give an insight into which process characteristics may play a role in citizens' evaluation of participation processes. First of all, different participation models with different levels of engagement are explained, which are commonly used by researchers and professionals to evaluate participation processes. Secondly, various considerations in the design of participation processes are discussed, which could affect their effectivity.

2.4.1. Participation models

Participation processes can be setup in several ways, with different levels of engagement. Several theorists have come up with models of participation, to design, analyze or evaluate participation processes (Bryson, Quick, Slotterback, & Crosby, 2013; Edelenbos et al., 2006; Michels, 2011). Moreover, these models can help to categorize the diverse forms of participation. The models for participation have been adapted over the years. The changes in the models over time are addressed in this section.

The first and most well-known participation model, is Arnstein's ladder of participation (Arnstein, 1969), which is mainly based on the distribution of power. She defines eight different levels of citizen participation in a planning process, from manipulation to citizen control (see Table 2).

Table 2 - Citizen participation ladder by Arnstein (1969, p. 217)

	Level of participation	
8.	Citizen control	Degrees of citizen power
7.	Delegated power	
6.	Partnership	
5.	Placation	Degrees of tokenism
4.	Consultation	
3.	Informing	
2.	Therapy	Non-participation
1.	Manipulation	

The higher a participation process can be placed on the ladder, the more power citizens have to determine the end product. The first two levels fall in the category of non-participation, which is focused rather on educating citizens than actually giving them a say. Manipulation is a way of citizen participation, that is used as a "public relations vehicle" to create support for a decision that was already made beforehand. Citizens are tricked into believing that they are involved, while they never really had the power to change the decision. In the level of therapy, citizens participate extensively, but participation is focused on a group learning process, to change their values and attitudes about perceived problems, instead of discussing how to actually solve these problems. Levels 3 to 5 are categorized as degrees of tokenism, meaning that citizens can give their opinions, but there is no assurance that these are considered when the decision is made. In level 3 citizens are informed about plans or ideas, but they cannot give any feedback or discuss it. In the stage of consultation citizens' opinions are actively gathered, but again citizens do not have the power to ensure that these opinions are valued in the actual decision making. Placation refers to participation in which there are a few chosen representatives included in committees, in which they can give advice. However, they can still be easily overruled and therefore do not actually hold the power to make decisions. In the highest levels of participation citizens do have decision-making power. In partnerships citizens and powerholders

negotiate and share responsibilities. In the stages of delegated power and citizen control, citizens have the power. In delegated power, citizens have a dominant position in a certain plan or program. Citizen control refers to the stage in which citizens have full managerial power, where they are the initiators to negotiate with powerholders, instead of vice versa (Arnstein, 1969).

One of the most utilized and applied participation models internationally, is the IAP2 Public Participation Spectrum, which was developed in the late 1990s and is currently the primary way to describe the level of citizen engagement in decision making processes (Hussey, 2019) (see Table 3).

Table 3 - IAP2 Public Participation Spectrum (IAP2, n.d.)

	Increasing impact on the decision →				
	Inform	Consult	Involve	Collaborate	Empower
Public participation goal	To provide the public with balances and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to the public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

The IAP2 spectrum defines 5 levels of engagement, from inform to empower. Contrary to Arnstein's ladder of participation, the IAP2 spectrum does not include the forms of non-participation, where participation is actually manipulation or persuasion. The spectrum starts with the level of inform, which relates to a level of engagement where citizens do not have any influence, but are genuinely given the information to understand plans or decisions. In the level of consult, information is given, but also feedback is valued. The initiator should explain to the public how the input is used, but just as in Arnstein's model, there is no assurance that the feedback is included in the decision-making. Involvement is quite similar to consultation, but feedback is asked earlier and more frequently in the process. In the collaboration levels, participation is focused on finding consensus, so citizens' input is actually included in the decision-making. The final stage is to empower citizens, so they can make decisions themselves. The model does not only focus on the decision-making power of citizens, but also includes the goal of the participation process and describes the promise made to the public (IAP2, n.d.).

The model can guide organizations in communicating the expectations of a participation process. First organizations should identify the goal of the participation process, second, they should clearly communicate the promise that they make to the public, so expectations are explicit. It should be noted that the goals and promises are context specific and can differ per project, a higher level of involvement is not necessarily the best way of participation in all cases (EPA, n.d.).

Edelenbos, Klok, Van Tatenhove, & Domingo (2004) also define five levels of participation, from inform to co-decide, and combine this with different management styles (see Table 4).

Table 4 - Participation ladder, adapted from Edelenbos et al. (2004, p. 21)

Participation ladder	Management styles	Role of citizen	Role of government
Co-decide	Facilitating	Takes initiative	Offers support and lets participants make policy
Coproduce	Delegating	Co-decision maker: within conditions	Decides on policy by considering the predetermined conditions
	Cooperating	Cooperative partner on basis of equality	Works and decides together with participation on basis of equality
Advise	Participating	Advisor	Determines policy, but is open to other ideas and solutions.
Consult	Consulting	Consulted interlocutor	Determines policy and gives the possibility to comment, but does not have to connect consequences to this.
Inform	Open authoritarian	Target group of research/information, does not give input	Executes policy independently and provides information about it.
Participant is not involved	Closed authoritarian	None	Executes policy independently and does not provide information.

Edelenbos et al. (2004) pay specific attention to the role of the citizen and the role of the government. The five stages are quite similar to the ones defined by Arnstein and the IAP2 model. At the lower levels, citizens are not involved or are merely a target group that gets informed but do not have any decision-making power. At the higher levels, there is cooperation between government and citizens. At the highest level, citizens take the initiative and the government becomes a facilitator. Edelenbos et al. (2004) state that initiators (whether they are governments, private actors or citizens) define the agenda of participation processes, which in turn influences the level of engagement. Hence again, it is a conscious choice whether or not to involve citizens intensively.

With the occurrence of digital participation tools, several authors have adapted Arnstein's ladder into an e-participation ladder (Ertiö, 2015; Murgante et al., 2019). These models are mostly used to categorize tools. One of these translations is done by Kingston (2002) (see Table 6).

Table 5 - E-participation ladder by Kingston (2002, p.4)

Increasing participation →			Level of communication →
	Online decision-making	Two way	
	Online PPGIS		
	Online comments on application		
	Online service delivery		
	Online discussion forums		
	Communication barrier		

Online opinion surveys Basic website	One way

The model moves from passive participation (lowest level), to interactive modes and finally to enable citizens to make final decisions (highest level). These ladders express the importance of communication and information sharing, which are supported by ICT (Carver, 2001; Hansen & Prosperi, 2005; Hudson-Smith, Evans, Batty, & Batty, 2002). Hudson-Smith et al. (2002) argue that these classifications are oversimplifications, that help to think about online participation. However, in reality, the participation process is much more complex.

The article of Ertiö (2015) also underlines the importance of communication and power sharing in participation. Three dimensions are defined to be of importance for mobile participation, namely the type of data collected, the information flow and empowerment (see Table 7).

Table 6 - Dimensions of mobile participation by Ertiö (2015, p. 308)

Dimension	Levels
Type of data collected	People-centric apps; document user activities, aim at understanding behavior Environment-centric apps: collect environmental parameters
Information flow	Public communication: one way transfer of information from the sponsor to the public Public consultation: information flows from citizens to sponsors Public participation: information exchange, deliberation and dialog
Empowerment	Criteria power: ability to determine a policy or service Operational power: ability to determine how a policy or service is carried out in practice

When looking at all these different participation models, a few key characteristics of participation processes can already be identified. Citizen power, access to information, the level of communication, frequency of involvement and the tools used in the participation process (e.g., traditional vs. digital) all seem to be of importance in the evaluation of citizen participation processes.

2.4.2. Designing participation processes

In this section it is examined how urban planning participatory processes can be designed by initiators (municipality). This will help to better understand which process characteristics may vary when setting up different participatory approaches. Several studies examined participatory processes and determined certain factors that can influence the outcome of such processes, which can be translated into criteria that should be considered when designing or evaluating such processes. The design of participatory processes is very complex. It depends largely on the goals of the initiators (e.g., increasing quality of policy, finding creative solutions for policy or creating support). Based on these goals, the initiators should consider the content, the selection of participants, outreach and accessibility, the level of information sharing and the selection of appropriate methods and tools, which all affect the outcomes of a participatory project (Bryson et al., 2013; Edelenbos et al., 2006; Faehnle & Tyrväinen, 2013; Stelzle, 2019; Van Empel, 2008; Visser et al., 2019). Other design features initiators of participatory processes should take into account are creating a set of rules, ensuring effective leadership and securing adequate (financial) resources (Bryson et al., 2013; Edelenbos et al., 2006; Visser et al., 2019). These design features are elaborated upon in this section.

2.4.2.1. Goals and level of involvement

As already mentioned before, the basis for designing any participatory process is the goals specification. When the targets for participation are set, other aspects of the approach can be adjusted accordingly (Bryson et al., 2013; Edelenbos et al., 2006; Faehnle & Tyrväinen, 2013). For instance, when exploring and generating potential solutions to public problems, deliberative approaches and small-group formats are suitable, whereas these are less suitable when there are already very clear boundaries, limiting the input participants can give. In that case, targeted consultation processes may be more effective. Hence, the goal of the participation process defines the level of involvement that participants have (ranging from being informed to being empowered) that in turn influences the chosen method for participation (Van Empel, 2008). Participation processes can have multiple goals, and targets may change during the participation process. Moreover, targets may also be set together with the participants, as part of the participation process (Bryson et al., 2013). It is essential for transparency that the goal(s) of the participation process is/are explicitly discussed with the participants (Visser et al., 2019).

2.4.2.2. Context and content

According to Bryson et al. (2013) participatory processes should be designed taking into account the general and specific context. There should be a clear understanding of the problem at hand, so that it is actually possible to solve the problem (Bryson et al., 2013). Edelenbos et al. (2004) argue that there should be a good balance between the width and the depth of the content that will be discussed, so there is enough room for participants to come up with creative solutions, but they are still able to oversee the subject. Formulating certain boundary conditions can be helpful, but when they are too strict they may block creative solutions (Edelenbos et al., 2006). Bryson et al. (2013) also argue that participatory processes should be adjusted according to the stage of the participation process. Different stakeholders may be involved in various ways at different stages in the process.

2.4.2.3. Inclusivity

Williamson & Fung (2004) define five categories of inclusivity in participatory processes. The first category is "open"; hence the process is open to all to those who wish to participate. Most participatory processes are open, but this results in a sort of "self-selection". Those who want to put in the effort to participate, which often results in an unrepresentative group (Edelenbos et al., 2006). It is also possible to select participants, for instance based on their expertise and involvement. Selection can also be based on having a diverse group of participants with a variety of opinions and interests, which is especially of importance when the aim is to create support (Edelenbos et al., 2006). Williamson & Fung (2004) describe four other categories that incorporate selection. The second category is "open and targeted", which is a combination of an open process, which also targets certain groups to improve representativeness. Thirdly, "random selection" can be used to improve representativeness. Hence, there is no group specifically targeted, but in general a representative sample of the population is contacted. The fourth category is "citizen stakeholders", which is aimed at involving those that are directly influenced by the outcomes of the process. Lastly, only leaders of organizations can be selected, which is labelled "elite stakeholders". When selecting participants, it should be considered who the stakeholders are. Stakeholders are those that are affected by the urban planning project (Faehnle & Tyrväinen, 2013). Involving the appropriate stakeholders in appropriate ways, based on the context, overall task or project purpose and goals of participation, across different stages of a participation process is essential. Who is involved and how they are involved may vary between different stages (Bryson et al., 2013).

Moreover, initiators should think about how many participants will be included in the process. Although many participants may be more representative, too many may make it more difficult to hear the less

assertive participants, to create interaction and to reach consensus. In projects that aim to create support, the number of participants is based on the different interests that are at stake and the amount of direct stakeholders (Edelenbos et al., 2006).

2.4.2.4. Outreach and accessibility

To include a diverse group of participants, municipalities should pay special attention to the outreach to residents and the accessibility of the participation process (Bryson et al., 2013). Initiators can use different communication methods to reach out to residents (Stelzle, 2019). For instance, advertising can be used to make them aware of participation opportunities. Moreover, it has been argued that people are more likely to participate when they are explicitly asked to do so (Schlozman et al., 2018). They can be invited directly at the front door or via post or e-mail, or indirectly via organizations, friends or acquaintances. Moreover, accessibility can be increased by removing barriers for commonly excluded groups, e.g. through providing language translation, child care, transportation assistance and convenient meeting times and places (Bryson et al., 2013). Visser et al. (2019) also state that participants should have the needed means to actually being able to participate in a participation process.

2.4.2.5. Information sharing

During a participatory process, information will be shared between the initiator and the participants. How this is done may vary. First of all, approaches can differ in their level of communication, namely whether there is one-way communication (from municipality to citizens or from citizens to municipality) or two-way communication (Ertiö, 2015). Again, this largely depends on the goal of the process and participants' level of involvement. In collaborative processes, two-way communication is essential. However, the municipality may also choose to only share information on the website, or to give residents the ability to give feedback as well. The level of communication also affects the communication method; the way in which participants are informed during the process (e.g. about project news or results) (Stelzle, 2019).

Secondly, in collaborative processes, the municipality should consider which information is shared with participants, when and how. On the one hand, it is important that participants have a certain level of basic knowledge at the beginning of the process, to be able to understand what they are talking about. On the other hand, sharing information upfront can also already structure the discussion, therefore leaving less room for other interpretations and perspectives. Besides, some participants may use information strategically, to influence the process. This is especially present in processes in which creating support or resolving conflicts are the main goals. There is a possibility to let participants gather information themselves within the process, which limits the substantive steering of initiators. However, this could also prolong the process. Hence, there is a need for a certain balance between sharing information upfront to limit spending time on unviable ideas and limited or no information sharing to stimulate creativity (Edelenbos et al., 2006). According to Faehnle & Tyrväinen (2013), stakeholders should be informed actively, in order to have a successful participatory planning process. In the initial stage of the process, they should gain information about how the process is setup, stating what the role of the participants is in the process and what opportunities they have to participate (Faehnle & Tyrväinen, 2013). Bryson et al. (2013) also underlines the importance of sharing this upfront, in order to build trust and legitimacy. Moreover, background information should be shared upfront or participants should be educated on the issues at hand, so all participants have the same level of information and knowledge to start from (Faehnle & Tyrväinen, 2013; Visser et al., 2019). At the initial stage, communication may thus be more focused on one-way communication from the municipality towards the participants. However, during the process, participants will also give feedback to the

municipality. This can be labeled as experiential information, which can be transformed into knowledge for the planning process. How valuable information can be retrieved largely depends on the used methods/tools for participation (Faehnle & Tyrväinen, 2013).

Lastly, during the process, the municipality should not only share information, but also demonstrate/acknowledge the competences of participants and show that participants' advice is translated into action. Hence, also after the process, giving feedback on how the input from citizens is used may be essential to show that the initiators follow through. This all helps in building trust amongst participants and the municipality (Bryson et al., 2013).

2.4.2.6. Participation methods and tools

As already mentioned before, the different stakeholders in a participation process should be involved in appropriate ways. Hence, the used method and tools should be specified to their needs. However, as also argued in this thesis, it remains unclear which tools are suitable for which stakeholders. The selection of methods and tools also depends on the goal of the participation process and the level of engagement (e.g., informing, cooperating or empowering). For instance, if the municipality wishes to inform their residents, consensus-building methods may be inappropriate, whereas such deliberative approaches are suitable for cooperation (Bryson et al., 2013).

A main distinction can be made between conventional tools and digital tools and between collective and individual participation (Michels, 2011; Stelzle & Noennig, 2017). Conventional tools are used for face-to-face processes, and thus require the physical presence of participants at a particular time and place. Digital tools can support conventional processes, but may also help to overcome some of the limitations of conventional tools, such as limitations to the amount of participants and the fixed time and place constraint (Christensen, 2020; Ertiö, 2015). Hence, groups that are commonly excluded could potentially participate more easily online. However, digital tools also have their own limitations. First of all, it has introduced a new way of exclusion by creating a division between people that have access to information and those that do not and between the computer literate and illiterate (Ertiö, 2015; Roberts, 2004). In addition, digital participation techniques are focused on individual interests rather than on the common good, and do not easily enable direct contact and interaction (Roberts, 2004). Therefore deliberation is difficult, which is essential to actually come to a better policy outcome and increase effectiveness (Irvin & Stansbury, 2004). Traditional mechanisms have more potential to be deliberative (Roberts, 2004). Hence, digital and traditional mechanisms both have their advantages and disadvantages.

An overview of some conventional and digital tools is given in Table 8, which are categorized by their suitability for certain levels of engagement.

Table 7 – Conventional and digital tools categorized by the different levels of engagement

Level of engagement	Conventional tools (Van Houwelingen et al., 2014; Aichholzer & Strauß, 2016; Stelzle & Noennig, 2017; Janse & Konijnendijk, 2007)	Digital tools (Aichholzer & Strauß, 2016; Li et al., 2020; Stelzle & Noennig, 2017)
Informing	Informational meetings/public events - Information evenings - Excursions - City walks - Group conferences - Public exhibitions	Informational material: - Online platforms - Websites - Apps - Social media - City- and region wikis

	- Information stands - Awareness raising events - Education activities Informational material - Door-to-door magazines - Campaigns - Letters - Press - Advertisement - Publications	- Blogs - Podcasts and webcasts - Open data portals
Consulting	Public consultation evenings Public hearings Surveys Competitions Debates Group discussions Interviews	Digital polls Online surveys Crowd-sourcing systems (input based) Social media Online complaint and suggestions management Web forums
Advice	Advisory councils Neighborhood councils Expert meetings Round table discussions	
Coproduce	Consultation groups Covenants Workshops (design, visioning and planning) Project groups Urban living labs	Crowd-sourcing systems (interactive) Visualization software (PPGIS, e.g. maptionnaires) Serious gaming platforms Virtual and augmented reality systems Simulation workshops
Co-deciding	Steering committee Participation council (Binding) referendum Participatory budgeting Citizen juries Multi Criteria Analysis	E-referenda Decision support systems Electronic citizen juries

2.4.2.7. Other design features

As mentioned before, potential disadvantages of citizen participation is that a subgroup of citizens may be dominant in the process (internal exclusion) or some citizens lack the expertise and knowledge to take rational decisions (Fung, 2004; Irvin & Stansbury, 2004; Mayer et al., 2005; Radzik-Maruszak & Bátorová, 2015). Moreover, the institutional embedding can be difficult due to the lack of (financial) means or support from other parts of the government (Edelenbos et al., 2006). Creating a set of rules, managing power dynamics, ensuring effective leadership and securing adequate (financial) resources may help to overcome these challenges (Bryson et al., 2013; Edelenbos et al., 2006). These other design features are especially important during the process itself and may affect the effectivity of the process. However, for citizens these aspects affect them more indirectly and could thus be less visible for them. Still, it is important to discuss these aspects briefly.

At the beginning of the process, the participants should create a set of rules and set up a framework for the content (Bryson et al., 2013; Edelenbos et al., 2006). It should be clear for participants in which framework they participate, e.g. can they define the goal of the process, define the problem definition or think along with solutions to an already defined problem? (Edelenbos et al., 2006). In addition, rules for the management of the process and the decision-making should be laid down (Bryson et al., 2013). The quality and innovativeness of the decision-making process can only be improved if different ideas are treated equally and actually affect the choice for solutions. Sharing power can reduce the domination of some participants, which can be achieved by cocreating the agenda and process for decision making and weighing in on the policy decisions. Hence, setting rules and creating the substantive framework helps to structure the process and make it more productive, reducing the chance of dominant participants, irrational decisions or lack of institutional embedding. In addition, the degree to which the process is open for new ideas affects the innovativeness in the decision-making process (Edelenbos et al., 2006). Lastly, it helps to build trust among participants and initiators (Bryson et al., 2013).

During the process effective leadership is key, because it helps the participants to overcome difficult challenges and keep them productive (Bryson et al., 2013). Bryson et al. (2013) distinguish three leadership roles: sponsors, champions and facilitators. Sponsors can be used to ease the institutional embedding by establishing policies, providing funds and staff, raising awareness of the participation efforts and use their power to ensure that the results affect the decision-making process. Champions manage the day-to-day participation effort and can generate enthusiasm for the participation effort and build support of sponsors. Facilitators help to structure the participation process, maintain neutrality toward outcomes and help participants cooperate productively. They can therefore overcome the challenge of dominant participants and coming to rational decisions.

The issue of lacking the (financial) means to transform the input of citizens into concrete actions can be avoided by securing adequate (financial) resources or even generating additional resources. This can be done by allocating resources, such as funds, staff time, technical assistance and the information structure upfront. Moreover, the initiators of participation processes should be aware of the trade-off between production costs and participation costs and keep in mind that participation processes has several advantages (on the long-term) if done correctly, such as limited delay and legal processes, continued community action and additional resources such as knowledge, commitment and enthusiasm for decision-making (Bryson et al., 2013).

In conclusion, several participation models could be identified that showed that participation processes are defined by the goal of the process and the level of involvement. Moreover, the context and content, the inclusivity, outreach and accessibility, the level of communication and information-sharing, the methods and tools and the management of participation processes are essential design features. In the following chapter it is explored how such design features may influence citizens' willingness to participate.

2.5. Which process characteristics influence citizens' willingness to participate?

There are only a few studies that examined which process characteristics influence citizens' willingness to participate, especially with regard to urban planning and development. In this section it is described which process characteristics play a role.

First of all, the most commonly found indicator is time (requirement and availability). Participation is perceived as time-consuming, which hinders people from participating (Tscharn et al., 2015). Brown, Bos, Walsh, Fletcher, & RossRakesh (2016) investigated the factors that influence participation in stormwater management and found that the complexity and time requirement of the preparation for the participation process resulted in non-participation. Christensen (2020) obtained that in general, when a participation process includes 6 to 10 meetings, citizens are less willing to participate. The results of Leao & Izadpahani (2016) showed that citizens were more willing to participate in environmental monitoring if they have the time available to actually do so.

Secondly, the content of the participation process seems to play an important role. When people have a concern for or interest in the topic of the participation process, they are more willing to participate (Leao & Izadpahani, 2016; Schlozman et al., 2018; Thiel et al., 2017). In the literature on political participation, it was found that citizens were more willing to participate if they were interested in politics (Barrett & Brunton-Smith, 2014; Gherghina & Geissel, 2017). In the context of urban planning, Fors et al. (2019) found that citizens were more willing to participate if they were interested in the project. Hence, different topics may have different effects on participation. Li, Feng, Timmermans, & Zhang (2020) found that infrastructure and transportation planning had the strongest positive effect on participation. Citizens were also more likely to participate in historical and cultural protection and public services. Participation concerning the ecological environment, however, has a significant negative impact on the intention to participate. Similarly, Brown et al. (2016) stated that the environmental aspect of the participation process that they studied deterred people from participation. On the other hand, they also indicated that residents that are environmentally conscious were actually more willing to participate. Hence, some topics can also have a polarizing effect. Christensen (2020) however, did not find a significant effect of different topics on the willingness to participate. Not only the topic itself, but also the difficulty of a topic influences participation. When the topic is more salient or controversial, citizens prefer to participate in more deliberative participatory processes and are also more likely to attend (Christensen, 2020; Goldberg et al., 2020; Janse & Konijnendijk, 2007; Larson & Lach, 2008; Schlozman et al., 2018).

Thirdly, the context of the project affects citizens' willingness to participate. Larson & Lach (2008) found that citizens were more likely to participate in local events and outdoor projects. The case study of Wang et al. (2021) also showed that citizens are more willing to participate at neighborhood level than at district level. On the contrary, the results of Li et al. (2020b) showed that regional and neighborhood planning resulted in a lower intention to participate, whereas city and district planning had a significant positive effect on participation. Tscharn et al. (2015) argue that citizens wish to participate when the issue directly affects them, whether this is at city or regional scale. With regard to the stage of the project, citizens are more willing to participate in the plan decision, which is more specific and concrete (Li et al., 2020b). Larson & Lach (2008) argue that the preference for the stage of the project depends on the type of person. Group leaders tend to be more involved in planning (vision or plan making stage), whereas other participants prefer hands-on projects that require action over planning (realization or exploitation stage).

Fourth, the outreach influences participation. Tscharn et al. (2015) state that citizens are often unaware of the communication channels of the municipality, therefore withholding them from participating. Also

in the case study of Brown et al. (2016), many people did not participate because they were not aware that they could. Moreover, some thought that the mail was advertising. Hence, the communication method used to invite citizens to participate should be considered carefully. According to Van den Berg, Giest, Groeneveld, & Kraaij (2020) the tone of voice also influences the willingness to participate. When citizens received an invitation that included descriptive social norms (emphasizing that other neighbors were also participating), citizens were less willing to participate. Moreover, getting invited personally (via a personal contact or a personalized letter) motivates people to participate (Schlozman et al., 2018; Tscharn et al., 2015).

Fifth, information sharing during and after the process is of importance to engage citizens. According to Li, Feng, Timmermans, Li, et al. (2020) a lack of communication lowers citizens' willingness to participate. Additionally, inadequate communication can result in confusion about the project and thus demotivate citizens to stay involved (Brown et al., 2016). Obstacles in communication relate to misunderstandings, ambiguity and conflict of interests (Janse & Konijnendijk, 2007). Tscharn et al. (2015) argue that citizens want to be informed about the decisions made and to get feedback about the participation process. Moreover, communication should be fast, create a sense of dialogue and should come from a single instance or contact person. According to Janse & Konijnendijk (2007) citizens want to see a concrete product or effect, to see that their effort made a difference in the decision-making. The feedback about the decisions should be provided in a comprehensive form. Irvin & Stansbury (2004) argued that when decisions are not being implemented, citizens can build resentment and may be less willing to participate. On the other hand, Schlozman et al. (2018) found that when people participated their interest, information and efficacy may have increased and are therefore more willing to participate. Hence, citizens should know about the decisions made after the process as this could influence future participation. Negative previous experiences may result in disengagement.

Some mixed results were found for the level of involvement. Christensen (2020) found that in general, citizens prefer to give advice to initiators of the participation process. The study by Thiel et al. (2017) suggests that citizens prefer to be informed. They found that gaining access to information about urban planning was an important motivation to participate. Li, Feng, Timmermans, & Zhang (2020) found that the preferred level of involvement differs between citizens. Older and highly educated citizens were more willing to participate in planning decisions and citizens with a higher income preferred to participate in online discussions. Hence, more resourceful citizens are more likely to participate at higher levels of involvement. However, they did not find significant differences in the general intention to participate with regard to the level of involvement.

Also for participation methods and tools results are inconsistent. Li, Feng, Timmermans, Li, et al. (2020) found that a lack of convenient tools lowers citizens' willingness to participate. The willingness to participate can be positively influenced by gradually shifting from methods to inform the public to methods that involve citizens in decision-making throughout the whole participation process (Janse & Konijnendijk, 2007). The study of Christensen (2020) showed that in general, citizens prefer to have face-to-face meetings over online participation. Online tools cannot replace real-life engagement, since engaging citizens through face-to-face meetings remains easier (Klamert & Münster, 2017; Mueller, Asada, & Tomarchio, 2020). Tscharn et al. (2015) found that senior citizens preferred personal contact and avoid digital opportunities, whereas the young citizens were more likely to participate online. When looking at online participation processes solely, Li, Feng, Timmermans, & Zhang (2020) found that citizens have different preferences regarding methods and tools, depending on their employment status and type of job. Workers were more willing to participate using websites and professional software, whereas students and retirees prefer social media tools. Citizens with a job in urban planning and thus more professional knowledge, preferred to work with professional software and social media

tools, whereas non-professionals were more willing to participate on websites and microblogs. Thiel et al. (2017) found that gamification added to the motivation to engage, but only in combination with a genuine interest in urban planning. Hence suggesting that content plays a more important role than the used methods.

Other process characteristics that were found to have a positive impact on the intention to participate are transparency (openness of the process), external rewards (e.g. financial incentives) and having access to the required technology (in online participation) (Brown et al., 2016; Christensen, 2020; Leao & Izadpahani, 2016). No significant effects were found for the inclusiveness of the process, which is related to the selection of participants (Christensen, 2020).

In conclusion, several process characteristics were found to influence citizens' willingness to participate in urban planning processes. The time requirement, outreach (communication method), content (the topic and its controversiality), context (scale and stage of the project), information sharing (level of communication and type of information), previous participation experiences, the level of involvement, the chosen participation methods and tools, transparency of the process, external rewards and access to the required technology all played a role in determining the level of engagement.

2.6. How can the preferences for citizen participation be measured?

In this section it is further explored how preferences can be measured and statistically analyzed. First of all, different methods are explored, within which there is a specific focus on choice experiments. Secondly, the theory behind state choice experiments is briefly explained and third, the different facets of stated choice experiments are described.

2.6.1. Measurement approaches for measuring preferences

Most studies that examined the effect of process characteristics on the willingness to participate focused on a specific case study (Brown et al., 2016; Larson & Lach, 2008; Leao & Izadpahani, 2016; Thiel et al., 2017; Wang et al., 2021). Some used qualitative methods such as interviews to collect their data (Larson & Lach, 2008; Tscharn et al., 2015), whereas others used quantitative methods and collected their data via surveys (Leao & Izadpahani, 2016; Thiel et al., 2017). Two studies used a Stated Preference (SP) method, which is a quantitative method to measure preferences. Christensen (2020) used a choice-based conjoint experiment and Li, Feng, Timmermans, & Zhang (2020) used a preference-based conjoint experiment.

The aim of this study is to find out if there are different preferences for participation between people. Although in real life, citizens do not yet always have a choice how to participate, the hypothesis of this study is that if people would have the choice, they are more likely to join a participation process of their liking. Hence, it makes sense to look into choice behavior and see if the choice patterns between individuals differ. As mentioned, choice-based conjoint experiments are a specific type of SP methods. To gain more understanding of the advantages and disadvantages of SP methods in general and of choice experiments in particular, the different types of SP methods are further explored.

In general, insight in preferences can be obtained from real situations using Revealed Preference (RP) methods or hypothetical situations using Stated Preference (SP) methods. SP methods are preferred over RP methods, because SP data are more suitable to predict changes in behavior and are easier to collect. Moreover, they allow the researcher to choose those attributes that are of interest, control the relationships between these attributes, include wider attribute ranges, and are rich in attribute tradeoff information (Adamowicz & Louviere, 1998; Louviere et al., 2000; Kemperman, 2000). A potential problem could be that the SP data is less reliable than RP data, but SP data can closely simulate RP situations and they are reliable as long as the respondents understand the tasks, are committed to it and can respond to it (Kemperman, 2000; Louviere et al., 2000). There are many sources of data from which researchers can measure preferences and choices, which range from asking respondents to choose one option from several other options (does not reveal complete preference ordering), to rank all options from e.g. most to least preferred (reveals preference order, but not the degree of preference), to rate the different options (which can imply a ranking, but this is weaker than a complete ranking), or to choose between a set of alternatives (Louviere et al., 2000). Hence, a main distinction can be made between rating, ranking and choice tasks (see Figure 5). As already stated, both rating and ranking options have some limitations. The information obtained from ranking tasks do not show the degree of preference that respondents have for the profiles. Moreover, respondents can only rank a limited number of options, otherwise the task gets too complex. Rating tasks provide information both on order and degree of preference, but it builds on the assumption that respondents can give a reliable rating that reflects their true preferences. Stated choice experiments (SCE) are preferred over rating and ranking methods, because they force respondents to make actual choices between two or more hypothetical alternatives, which makes their choice behavior more realistic. However, it is more difficult to estimate models at an individual level with SCE's and therefore they require a larger number of observations (less efficient) (Kemperman, 2000).

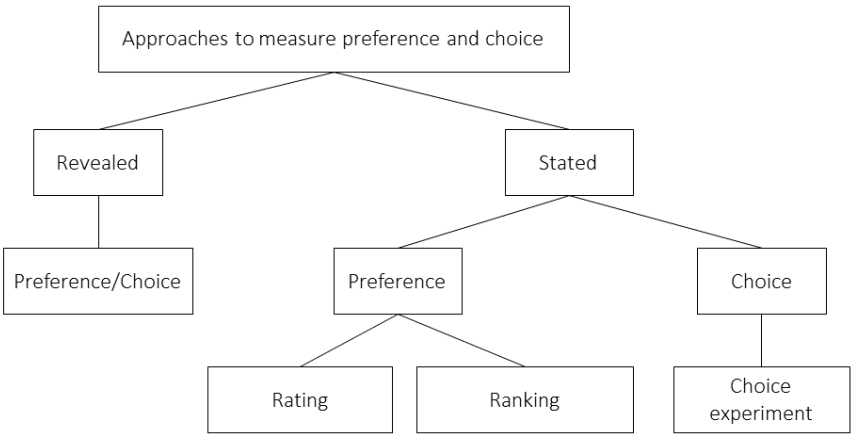

Figure 5 - Measurement approaches for preference and choice (adapted from Adamowicz & Louviere (1998) and Kemperman (2000))

In conclusion, there are several advantages to SCE's. First of all, they allow the researcher to control which attributes are evaluated. Moreover, choice experiments involve trade-offs. Therefore, it is possible to gain insight into how certain process characteristics affect citizens' evaluation of participation processes. In addition, an SCE does not need to include existing alternatives (due to unlabeled experiments), so respondents do not have to be familiar with specific types of participation processes (Christensen, 2020; Hensher, Rose, & Greene, 2015d). This is also an advantage over previous research that looked into specific cases (e.g., previous participation processes or new participation methods), as it allows for a general evaluation of participation processes. Considering this, using a SCE in this study seems the most suitable method. Therefore, the following section dives further into the underlying theory of stated choice experiments and how such an experiment can be set up.

2.6.2. The theory behind Stated Choice Experiments

People make decisions (sub)consciously by comparing alternatives and selecting an action. It is challenging for researchers to capture all the information that is considered by individuals when making a choice. Moreover, which action is selected varies widely between individuals (heterogeneity). Researchers that study choice behavior should aim to maximize the observed heterogeneity and minimize the unobserved heterogeneity. Since it is difficult to include all information, researchers should be aware that although not all data is included in a choice task, it is still relevant to an individuals' choice (Hensher et al., 2015d).

In SCE's there is a specific decision context or choice situation, in which respondents choose one alternative. According to the Random Utility Theory, people's choices can be predicted based on the overall utility that they derive from each of the alternatives, as they are assumed to choose the alternative with the highest level of utility (utility maximization). The overall utility is in turn derived from the part worth utilities of the different attributes of the alternative. Discrete choice models estimate the weights that respondents attach to each of the attributes of an alternative, which are combined to constitute the structural utility for the alternative. This calculation is captured in the following formula:

$$V_i = \sum_n \beta_n * X_{in} \quad (1)$$

Where:
V_i = Structural utility of alternative i
β_n = Weight of attribute n
X_{in} = Value of alternative i on attribute n

This calculation is limited to the observed utility, whereas there is also an unobserved utility, since not all information can be captured in the SCE's, as mentioned before. Therefore, the overall utility is the sum of the structural utility (observed) and the random utility (unobserved), as stated in the formula below (Arentze, Borgers, Timmermans, & DelMistro, 2003; Hensher et al., 2015d):

$$U_i = V_i + \varepsilon_i \quad (2)$$

Where:
U_i = Utility value of alternative i
V_i = Structural utility of alternative i
ε_i = Random utility of alternative i

2.6.3. Designing Stated Choice Experiments

When designing an SCE, researchers should go through a number of stages (see Figure 6). Each stage has its own considerations, which will be briefly discussed in this subchapter.

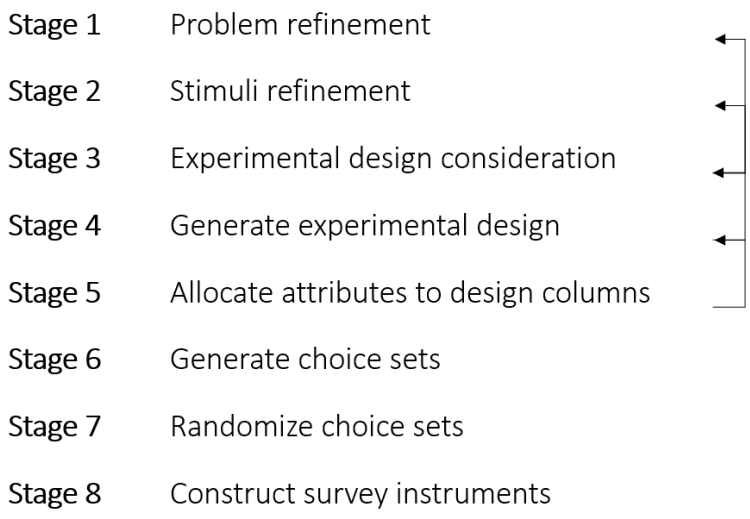

Figure 6 - Experimental design process (adapted from Hensher et al. (2015))

First of all, the researchers need to define the scope of the research. They need to have a good understanding of the problem at hand, which determines the research questions that need to be answered. In addition, setting up hypotheses can help to identify which types of questions are needed in the survey.

In the second stage, researchers identify the alternatives, attributes and attribute levels. First of all, researchers should make a list of all the alternatives that may be relevant to the decision makers in the study's context. Then, often there is a need to reduce the number of alternatives, since SCE's do not allow to study all. A common way to do this is by excluding insignificant alternatives and/or by using unlabeled (generic) alternatives. When the list of alternatives is made, the attributes and their levels that define these alternatives should be determined. This can be a difficult task, since alternatives may

not have similar attributes or when they do, the levels that define them could differ as well. Moreover, decision makers may treat attributes dependent of each other, whereas in the design itself they are independently estimated. This could result in unacceptable combinations of attributes in the design. Nested designs could be a solution to overcome this problem of inter-attribute correlations. Considering the levels of the attributes, research should think about the number of levels (which can differ per attribute) and the labels they give to the levels. More levels will result in more (accurate) information and may better capture the real relationship in terms of utility (Hensher et al., 2015d). The labels of the attribute levels can be quantitative (e.g., time, presented as numbers such as 10 minutes, 20 minutes, etc.) or qualitative (e.g., color, presented as words such as green or yellow). For the quantitative labels of the attribute levels it is important to carefully consider the attribute level range (Hensher et al., 2015d). A wide range is statistically preferred over a narrow range, as it leads to better parameter estimates. However, if the range is too wide, there may be dominant alternatives in the choice task. A too narrow range on the other hand, could lead to indistinguishable alternatives (Design, 2012).

The third stage involves decisions about the experimental design that will be used. The most important decision that needs to be made is whether to use a full factorial or fractional factorial design. A full factorial design includes all possible combinations of attributes (treatment combinations). The advantage is that it allows to estimate the main effects (direct independent effect of each attribute on the choice) and all interaction effects (combined effect of two or more attributes on the choice) independent of one another. However, there is a practical disadvantage to full factorial designs, as the number of possible choice sets can become too large, requiring many respondents and/or imposing too big of a burden on respondents. Therefore, most researchers choose to use a fractional factorial design, which consists of a subset of choice situations from the full factorial design. This selection is based on orthogonal or efficient designs. In orthogonal designs, the correlation between the attribute levels is minimized. Efficient designs try to maximize the information from each choice situation by satisfying a number of statistical efficiency criteria. When designing orthogonal designs researchers should first consider if they want to only model the main effects (orthogonal main effects only designs), or if they also want to model some of the interaction effects. Designs that allow to estimate interaction effects do increase the number of treatment combinations required. Other strategies to reduce the number of required choice sets is to reduce the number of levels used in the design, blocking the design or using a combination of a fractional factorial design and the blocking strategy. When using a blocking strategy, the design is segmented. This makes the task easier for respondents. However, depending on the amount of segments, more respondents are needed to complete the full or fractional factorial design (e.g. twice as many for two segments) (ChoiceMetrics, 2012; Hensher et al., 2015d).

In the fourth and fifth stage, the experimental design is generated. Orthogonal designs can be chosen from example plans (e.g. Addelman (1962)) or be generated by computer software such as SPSS. Efficient designs can be generated using software, such as Ngene. Stage four and five can be conducted simultaneously if the researcher chooses for a main effects only design. When generating the design, it is of importance to consider the coding of the attributes (dummy or effect coding). Dummy and effect coding both allow for non-linear effects to be tested in the levels of the attributes (Hensher et al., 2015d). The overall model fit is the same, but there is a difference in interpretation. When applying dummy coding in choice experiments, each attribute's part worth utility is the difference between the attribute's parameter value and the base/comparison level, i.e., the (part worth) utility is relative to the base level. In effect coding the attribute's part worth utility compares to the grand mean of the dependent variable (Kemperman, 2000). Besides considering the coding scheme, the researcher should also be aware if the design is balanced or unbalanced. In balanced designs one level of an attribute appears the same number of times as the other levels of that attribute. Unbalanced attributes of an

unbalanced design could appear to be significant because it is dominantly present in the survey, rather than that it is actually statistically significant.

Stage six, seven and eight involves the generation and randomization of the choice sets and how they are presented to the respondents in the survey. In stage six the profiles are randomly combined into choice sets that will be presented to the respondents in the survey. Researchers should consider how many choice sets respondents will receive. By showing a larger number, the number of respondents can be decreased. The order in which the respondents will see the choice sets will also be randomized to avoid possible biases from order effects. In order to randomize the choice sets, different versions will be made. In the survey, respondents will receive one of these versions and answer per choice set which of the alternatives they prefer. Besides the experimental design, the survey can also include additional questions that are needed to answer the research question. Moreover, an information page explaining the scenario and the choice tasks should be included. Lastly, the survey should be tested before being distributed (Hensher et al., 2015d).

In conclusion, since this study hypothesizes that people would be more likely to join participation processes if they can choose a process that they prefer, it seems suitable to study choice behavior using a stated choice experiment. The advantage of stated choice methods is that it allows to control the attributes, to measure trade-offs between attributes and it is comprehensible for respondents. To set up a stated choice experiment, several stages need to be executed, from the problem refinement until the setup of the survey.

2.7. Conclusion

This chapter gave an overview of the literature on civic participation and participation in the context of urban planning. First of all, the different definitions and (dis)advantages of citizen participation were discussed. In this study there is a specific focus on citizen participation in urban planning. Citizen participation is relevant in the context of urban planning, due to its complex nature. Urban planning processes have a multitude of scales and stakeholders, and it is interrelated with various domains. Due to this, the decision-making process is complicated. Citizen participation in urban planning refers to the early engagement of citizens in the decision-making process about urban development projects with the aim to make the process more innovative, effective and efficient (due to local knowledge, additional resources, increased support and thus reduced time and costs). This is done by retrieving the interests of citizens or cooperating with them, and thereby creating more support for decisions. In the Netherlands, municipalities are obliged, and private initiators are stimulated to set up participatory processes for their urban development plans. Here, citizen participation is an addition to the formal legal processes that allow citizens to react on plans. The new Environmental and Planning act does not give any guidelines on how to design participatory processes, although municipalities are advised to lay down how they plan to create accessible and representative processes. This is necessary because a large part of the society does not engage. In practice, the participants are often unrepresentative for society, which makes the legitimacy of the decisions made in participation processes questionable.

One of the reasons that citizens refrain from participation is that the process is not designed well. Citizens have different preferences for participation processes. Several types of participants with different levels of engagement could be identified in the literature that are characterized by certain personal characteristics. The willingness to participate and preferences for participation were found to be affected by (e.g., age, level of education, length of residence), political (e.g., political efficacy and interest), social (e.g., societal engagement, social capital) and psychological (e.g., personality traits and motivation to participate). The literature regarding the relationship between personal factors and the willingness to participate mostly focused on civic participation, only limited research was done in the context of urban planning.

In addition, prior research showed that several process characteristics, including the invitation channel, time of the participation process, the context of the project, the level of engagement, the used methods and tools and information sharing during and after the process affect the way in which citizens (want to) engage. Only a few empirical studies examined the relationship between process characteristics and the willingness of citizens to participate in urban planning. Moreover, most studies focused on a specific case study or evaluated specific participation methods. Two studies specifically focused on the general preferences for participation processes and used stated preference/choice methods to analyze these. The advantage of stated choice methods is that it allows to control the attributes, to measure trade-offs between attributes and it is comprehensible for respondents. This study is innovative in using a quantitative approach to measure citizens' preferences for participation processes in a Dutch context and examining whether different types of participants with accompanying personal characteristic can be identified.

3. Methodology

In this chapter the methodology of the research is explained. First of all, the conceptual model with the included variables is described. Secondly, the operationalization of the variables is clarified. Thirdly, the design considerations for the stated choice experiment are elaborated upon, followed by a description of the survey design. Lastly, the analysis methods that will be used to analyze the collected data are explained.

3.1. Conceptual model

As stated in chapter 2.6.3, when designing a stated choice experiment (SCE) it should first be considered which characteristics will be included in the research. A distinction is made between contextual-, personal- and process characteristics. Figure 7 gives an overview of the included characteristics. The choice for including the variables is based on the literature review, which is clarified in this subchapter.

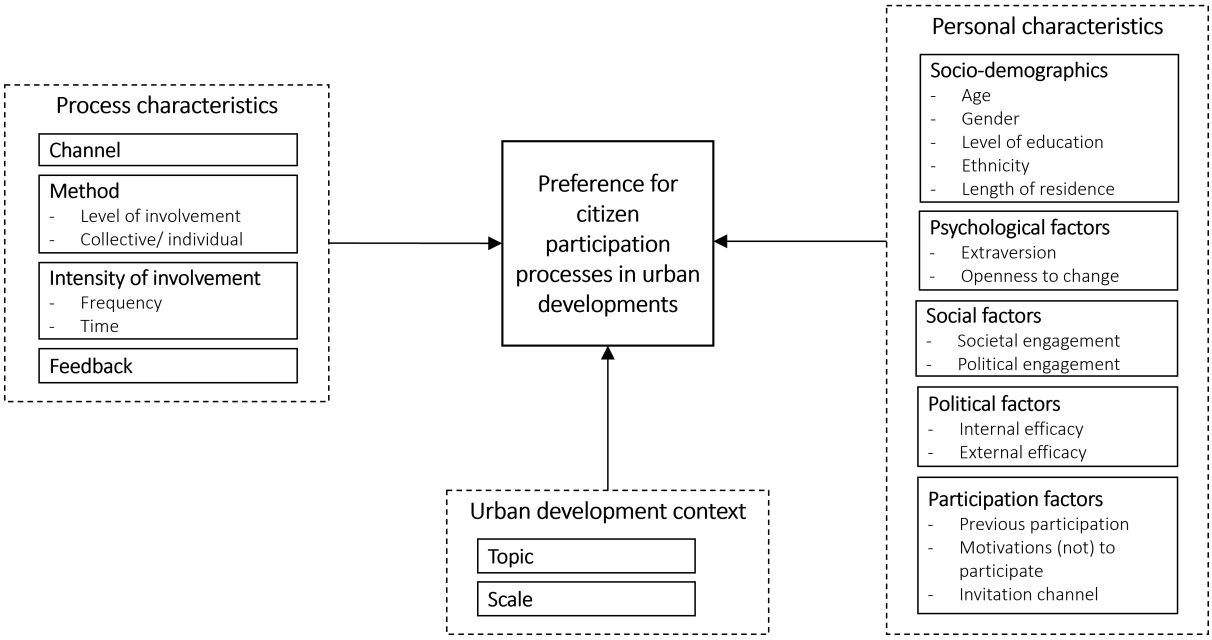

Figure 7 - Conceptual model

First of all, it can be concluded from the literature review that the context of the urban development plays a role. It is chosen to focus on the urban planning topic and scale, since these appeared to have the strongest influence in previous research (Li et al., 2020b).

Secondly, with regard to the process characteristics, previous research has shown that the intensity of involvement has an influence on the willingness to participate (Brown et al., 2016; Christensen, 2020; Li et al., 2020b). This is divided into the frequency of involvement and the time requirement per instance. Additionally, citizens were found to have different preferences for the method of participation and the used method affects their intention to participate (Christensen, 2020; Li et al., 2020b). Participation methods can be categorized according to the used channel (whether participation is online or offline), the level of involvement and whether people participate in a group or individually (Michels, 2011; Stelzle & Noennig, 2017). Hence, these characteristics are included as separate variable in this research. Lastly, research showed that citizens want to be informed about the decisions made after participation to know if something is done with their input (Tscharn et al., 2015). This is included as feedback, explaining whether or not feedback is given about the outcomes and the considerations in the decision-making process.

Lastly, in the literature review several personal characteristics were found to influence the willingness to participate. Most research is done into the influence of sociodemographic data. However, several studies have shown that psychological, social and political characteristics also affect citizens' preferences. Therefore, it was chosen to include some characteristics per category to be able to compare the extent to which the different personal characteristics play a role. The choice for the included characteristics was based on the literature review. In the context of urban planning, age, the level of education, the length of residence and motivation to participate were found to affect the willingness to participate (Jacquet, 2019; Janse & Konijnendijk, 2007; Thiel et al., 2017; Wang et al., 2021; Li et al., 2020b). In addition, gender, ethnicity, personality traits, civic engagement and political efficacy were found to be important factors in civic participation (Barrett & Brunton-Smith, 2014; Bozogáňová & Výrost, 2019; Campbell, 2013; DeSantis & Hill, 2004; Goldberg et al., 2020; Jennstål, 2016; van den Berg et al., 2020). It is therefore interesting to see if these factors also play a role in participation in the context of urban planning. Although income, political interest and institutional trust seemed to be important predictors in civic participation, they were excluded since they may correlate with some of the other factors. Lastly, previous participation and preferred invitation channel were included in this study as personal characteristics, as it was found that the way in which people were invited and previous experiences in participation processes also played a role in their intention to participate (Tscharn et al., 2015; Brown et al. 2016; Irvin & Stansbury, 2004; Schlozman et al., 2018).

3.2. Operationalization of the characteristics

The chosen contextual and process characteristics were included as attributes in the SCE. The personal characteristics were included as additional questions in the survey, with the aim to find out if and how personal characteristics influence the preferences for certain participation processes that are measured with the SCE. This subchapter explains how the different characteristics are operationalized in the research. First, the context and process characteristics are discussed, followed by the personal characteristics.

3.2.1. Context and process characteristics

The context and process characteristics were included as attributes in the SCE. The attributes had associated levels, that differentiated to together form various alternatives. To determine the number of levels per attribute, a balance was sought to gain as much information as possible, while keeping the task for respondents simple and limiting the number of respondents needed. This was done because on the one hand, SCE's should seek to include as much information as possible that individuals would consider when making a choice between participation processes in real life (Hensher et al., 2015d), while on the other hand simplification of the choice task can increase the stability of the data (Arentze et al., 2003). The choice for the levels was based on the literature review. Table 9 shows an overview of the attributes and their levels.

Table 8 - Overview of the attributes and their levels in the SCE

Attribute	Levels
Context	
Topic	1. Housing 2. Greenery
Scale	1. Neighborhood 2. City
Process	
Channel	1. Offline 2. Online
Level of involvement	1. Be informed 2. Give advice 3. Co-decide
Collective/ individual	1. Collective 2. Individual
Frequency of involvement	1. 1 instance 2. 2-5 instances 1. >5 instances
Time requirement	1. < 15 min. 2. 15-60 min. 3. >60 min.
Feedback	1. No feedback 2. Feedback about the outcomes 3. Feedback about the outcomes and decision-making process

First of all, the topic varies between housing and greenery, because both are ongoing topics of direct interest to citizens (e.g., the housing crisis and climate change). In addition, Li et al. (2020b) found that ecological environment had a significant influence on citizens' willingness to participate. With regard

to scale, especially the trade-off between local and city projects seemed to be important (Li et al., 2020).

Secondly, there was a variation in the number of levels of the process attributes. With regard to the channel, a main distinction can be made between online and offline participation (Stelzle & Noennig, 2017). The level of involvement ranges from being informed, giving advice to co-decide. In the literature even more levels are mentioned, but these three seem to clearly indicate the most important differences in the power citizens have in participation processes. The distinction between collective and individual participation methods is made in accordance with Michels (2011) and Stelzle & Noennig (2017). With regard to feedback, it is important for citizens to know that something is done with their input and ideas (Janse & Konijnendijk, 2007; Tscharn et al., 2015). This may influence whether or not they will participate in other future projects (K. Schlozman et al., 2018). Municipalities may give no feedback at all, or only give feedback about the outcomes, without explaining why some ideas may be denied. The most complete way of giving feedback seems to be to explain the decision-making process and the final decision made. Hence, three levels can be distinguished: no feedback, feedback about the outcomes, feedback about the outcomes and the decision-making process.

3.2.2. Personal characteristics

The personal characteristics were included as separate questions in the survey. The operationalization of these characteristics is explained per category (sociodemographic-, psychological-, social- and political- and participation factors) below.

As explained in section 3.1 the sociodemographic characteristics adopted in this study were age, gender, level of education, ethnicity and length of residence (see Table 10). Age and length of residence were included as continuous variables. For gender, three options were given: male, female or other. The levels of education were based on the general division in the Netherlands (CBS, 2021a; CBS, n.d.), but reduced and adapted to also match international levels of education. The levels for ethnicity were based on the six largest population groups in the Netherlands (CBS, 2021c).

Table 9 - Overview of operationalized sociodemographic characteristics

Variables	Levels
Age	*Continuous*
Gender	- Male - Female - Other
Level of education	- Primary school - Secondary school - Vocational education - Bachelor's degree (university of applied sciences/university) - Master's degree or doctorate
Ethnicity	- Dutch - Turkish - Moroccan - Surinamese - Indonesian - German - Polish - Other
Length of residence	*Continuous*

The psychological factors used in this study were the personality traits 'extraversion' and 'openness to change', since previous research has shown that these two traits affect the willingness and/or preferences to participate (Jennstål, 2016). In accordance with the commonly used Big Five Inventory-10 (BFI-10) (Rammstedt & John, 2007), respondents were asked to what extent they agree to each of the following four statements:

I see myself as someone who …
1. … is reserved (extraversion)
2. … is outgoing, sociable (extraversion)
3. … has few artistic interests (openness to change)
4. … has an active imagination (openness to change)

A 5-point Likert scale ranging from 'strongly agree' to 'strongly disagree' was used for the rating.

With regard to social factors, only civic engagement was included as a characteristic. It was chosen to define civic engagement in terms of being part of /active in a political and/or societal organisation. Respondents were shown a list of political and societal organizations (see Table 11) and were asked to indicate per organization whether they were not involved, passively involved or actively involved, similar to the measurement of social engagement of the LISS panel data archive (LISS panel, 2021).

Table 10 - List of political and societal organizations, division in accordance with Steketee, Mak, Van der Graaf & Huygen (2005)

Political organizations	Societal organizations
Political party	Cultural-, sports- or hobby association
Migrant-, refugee-, or human rights organization	Study- or student association
Animal rights-, or nature- and environmental organization	Neighborhood association
Labor union, employee or employer organization	Religious organization
	Science-, education-, teachers or parents' association
	Organization for neighbors, elderly or disabled assistance

The political factors included in the research are internal and external efficacy. Four statements were included, which were rated using a 5-point Likert scale ranging 'strongly agree' to 'strongly disagree'. The statements are adapted from the European Social Survey (European Social Survey, n.d.) to an urban planning context. The following statements were used:

1. The municipality fully enables people like me to be involved in what the municipality does through participation (external efficacy).
2. I am fully capable of taking an active role in participation in urban developments (internal efficacy).
3. The municipality fully enables people like me to have an influence on urban developments (external efficacy).
4. I am fully confident in my own ability to be involved in participation in urban developments (internal efficacy).

Lastly, several questions regarding participation were included in the survey. First of all, it was asked whether people had ever participated in urban developments before, which could be answered with

'yes', 'no' and 'don't know'. Secondly, the motivations for participation were split into motivations to participate and motivations to **not** participate. Respondents could choose from a list of motivations (see Table 12), which are selected from motivations included in previous research from Agger (2012), Jennstål (2016) and Thiel et al. (2017). For these questions also an 'other' option is given.

Table 11 - List of motivations (not) to participate

Motivations to participate	Motivations not to participate
I am interested in urban planning	I am not interested in urban planning
I want to develop myself	I don't know much about urban planning
I want to influence decisions	I don't want to participate/ participation takes too much effort
I want to participate because a financial compensation will be given	I don't have time to participate
I never want to participate	

Thirdly, respondents were asked how they would like to be invited for participation processes. They could choose from a list of channels (see Table 13) and could also give their own suggestion using the 'other' option.

Table 12 - List of invitation channels

Invitation channels			
1.	At the front door	5.	E-mail
2.	Personal network	6.	Website
3.	Letter	7.	Municipal app
4.	Telephone	8.	Social media

3.3. Choice experiment

This subchapter explains how the choice experiment is setup, describing the considerations for the experimental design and the setup of the actual choice sets.

As mentioned in chapter 3.1, a few of the chosen attributes refer to the context of participation processes, rather than the process itself. In real choice situations, the context of the urban development is set, and residents may choose within this context if and/or how they want to participate. Hence, there was a specific interest to examine the effects of context variables on the choice between different participation processes in this study. A context-dependent SCE allows to extend the SCE with descriptions of context situations. The advantages of a context-dependent SCE are that it is possible to examine the interactions between the context and process attributes. In other words, it shows how process attributes vary within different contexts (Molin, 2010). Considering the context made the results more valuable for practice, since in reality municipalities, developers or other initiators of participation processes in urban development will always work with a specific context. Hence, the choices in the experiment were more realistic for respondents as well, as the hypothetical choice is similar in their daily lives. Hence, the results of the SCE may better explain actual choice behavior. In addition, separating the context from the process experiment, also made it easier for respondents to understand the task that is presented to them, because the context remained similar for the two processes that they had to choose from. The task would be more complex if all attributes were included into one design. Since task complexity is reduced, the estimated results may be more reliable and valid (Arentze et al., 2003). In a context-dependent SCE the choice sets with process attributes are nested under the different context descriptions. Therefore, two different experimental designs are made; one for the context attributes and one for the process attributes. To limit the number of respondents necessary and make the task easier for respondents, it had been chosen to design the choice tasks in such a way that the context attributes do not vary within the respondents, but only between the respondents. Although, this eliminates the possibility to estimate within person variability (Molin, 2010), it is possible to examine whether or not context plays a role in the choice decisions of the full sample.

To construct the stated choice experiment, first an experimental design for the context attributes was setup to come to a set of context description. A full factorial design was used. Combining the levels of the context attributes resulted in four different context descriptions (see Table 14).

Table 13 - Experimental design for context descriptions

Profiles	Topic	Scale
1.	Housing	Neighborhood
2.	Housing	City/village
3.	Greenery	Neighborhood
4.	Greenery	City/village

In the survey the respondents first saw a general text description, in which these levels varied:

> "Your municipality is making plans for the **[topic]** in your **[scale]** and wants to involve you. The following 8 questions each describe two ways in which you could be involved voluntarily and without compensation. Please indicate which variant you prefer."

Next, the experimental design of the process attributes followed. Since a full factorial design of the process attributes would result in 324 possible combinations, it was chosen to use a fractional factorial

design. The final fractional factorial orthogonal design was based on the design index with experimental plans of Eindhoven University of Technology. This resulted in a design with 16 profiles (see Table 15).

Table 14 - Experimental design for process attributes

Prof-iles	Participation channel	Level of involvement	Participation method	Frequency of involvement	Time requirement	Feedback
1	Offline	Be informed	Collective	1 instance	<15 min.	No feedback
2	Online	Advice	Collective	1 instance	15-60 min.	Feedback about outcomes and decision-making process
3	Online	Co-decide	Individual	1 instance	>60 min.	Feedback about outcomes
4	Offline	Advice	Individual	1 instance	15-60 min.	Feedback about outcomes
5	Online	Advice	Individual	2-5 instances	<15 min.	Feedback about outcomes
6	Offline	Be informed	Individual	2-5 instances	15-60 min.	Feedback about outcomes
7	Offline	Advice	Collective	2-5 instances	>60 min.	Feedback about outcomes and decision-making process
8	Online	Co-decide	Collective	2-5 instances	15-60 min.	No feedback
9	Offline	Co-decide	Individual	>5 instances	<15 min.	Feedback about outcomes and decision-making process
10	Online	Advice	Individual	>5 instances	15-60 min.	No feedback
11	Online	Be informed	Collective	>5 instances	>60 min.	Feedback about outcomes
12	Offline	Advice	Collective	>5 instances	15-60 min.	Feedback about outcomes
13	Online	Advice	Collective	2-5 instances	<15 min.	Feedback about outcomes
14	Offline	Co-decide	Collective	2-5 instances	15-60 min.	Feedback about outcomes
15	Offline	Advice	Individual	2-5 instances	>60 min.	No feedback
16	Online	Be informed	Individual	2-5 instances	15-60 min.	Feedback about outcomes and decision-making process

In this design, only the main effects could be estimated, hence interaction effects between the attributes were not estimated. There are several reasons to only consider the main effects. First of all, when taking into account interaction effects, a lot more parameters would need to be estimated. To

get valid results, the number of respondents should then be increased. It was assumed that getting a lot of respondents would be a difficult task, because in order to get information on participation, residents are asked to participate in the survey, whereas this is actually the issue at hand. Although extra effort was put in data collection, the design was designed as efficient as possible, to be able to get valuable results for answering the main question, in case of a limited sample. Secondly, main effects tend to explain the largest part of the variance in the data (Sanko, 2001; Hensher et al., 2015). Thirdly, limited empirical research is done into the preferences for citizen participation, hence knowledge is limited. Therefore, it already gave a lot of insight to only look at the main effects, as this still explains which attributes are important to respondents and to what extent.

Lastly, the experimental design was generated. Respondents were asked eight times to make a choice between two alternatives. By showing each respondent eight choice sets, all the profiles were reviewed, therefore limiting the number of respondents needed. Besides the two alternatives, depending on the context and scenario, it is an option to also show a null (no preference) alternative. In this study it was chosen to include the null alternative as separate question in the survey. This was done to avoid that respondents would repeatedly choose the null alternative, which could be a threat in the context of participation. If this would be the case, it would not be possible to measure respondent's preferences with regard to participation processes. By first asking their preference for two alternatives and then asking whether or not they would participate in their preferred process, it was possible to estimate their preferences for the process, as well as their intention to actually participate. The alternatives in the choice tasks were unlabeled, since there were no alternative-specific parameters. Moreover, the alternatives were described verbally and were also visualized (see Appendix A: Example of the choice task). Although visualizations have not been found to affect the accuracy of the results (Arentze et al., 2003), they were still assumed to make the task easier for respondents.

3.4. Survey design

When designing the survey, a balance had been sought between capturing the information needed to answer the main research question, whilst reducing the complexity of the questions, the length of the survey and the amount of reading necessary, to avoid respondents from quitting the survey.

The survey had been constructed digitally in LimeSurvey, with Dutch as base language and English as second language. The survey started with an information page, followed by a consent page, to explicitly allow the collection of respondents' (personal) data. The survey had been checked and approved before distribution by the ethical board of the Eindhoven University of Technology, so it was in accordance with the GDPR (see Appendix B: Form of approval). The actual survey then started with the SCE, since this was the most important data to collect. The SCE was introduced with an information page, explaining the SCE and the attributes, using prerecorded videos. Next, respondents were randomly shown one of the four context descriptions. This was followed by one of the five versions of eight choice sets with varying process attributes. The third part of the survey included the personal questions, that were used to explain the preferences as found by the SCE. First of all, the questions about sociodemographic data were asked, which were followed by the questions about personality traits, thereafter civic engagement, then political efficacy and lastly the motivations to (not) participate. All questions were mandatory, which reduced the amount of missing values, aiming to be better able to answer the main research question. The complete survey can be found in Appendix C: Survey.

Before distributing the survey, the survey was checked several times by university supervisors, friends and family members, and cooperating municipalities on the legibility and clarity of the choice tasks and the additional questions. Special attention was paid to the use of easy words and explanation of some terms, since the aim was to make the survey as accessible as possible for various people. Moreover, it

had been checked if the mobile version also worked correctly and the layout had been adjusted to make the mobile version easy to read as well.

3.5. Minimum sample size

In order to be able to accurately analyze the data, different rules of thumb exist that estimate the minimum sample size necessary to get valuable results. A commonly used rule of thumb for estimating the minimum sample size for SCE's is the one created by Orme (1998):

$$\frac{NTA}{C} > 500 \tag{3}$$

Where:
N = Number of respondents
T = Number of tasks
A = Number of alternatives per task
C = Maximum number of levels in an attribute

The number of tasks in the SCE is set on 8, there are 2 alternatives per choice set and the maximum number of levels in an attribute is 3. Hence, following this rule of thumb, the minimum sample size should be 94 respondents. However, since the aim of this research is to study the differences in preferences between individuals, a latent class analysis (LCA) was performed to identify if there are different classes of individuals with similar preferences. The minimum number of classes to estimate was two. Since the dataset would be segmented in two, there were twice as many respondents needed (Orme, 1998), resulting in a minimum amount of 188 respondents.

It should be noted that the rule of thumb by Orme is based only on the experimental design of the process attributes. Since the context-dependent SC design takes into account interactions between the context and process attributes, Orme's formula is less suitable to use. Another general rule of thumb for regression analysis is that there are at least 20 observations per parameters required, resulting in the following formula:

$$N_{min} = P * 20\ observations \tag{4}$$

Where:
N_{min} = Minimum amount of respondents
P = Total amount of parameters

Since there are 8 choice tasks per respondent, per respondent there are 8 observations. The total amount of parameters is the sum of all the parameters of the main effects and the parameters of the interaction effects between the context and process attributes that needed to be estimated. For the main effects of the context attributes, 2 parameters needed to be estimated. For the main effects of the process attributes 10 parameters needed to be estimated. In the estimation of the interactions between the context and process attributes, 20 parameters were included. Hence, in total 32 parameters were estimated in the model. This required a minimum sample size of 80 respondents. Again, this should amount should be multiplied by two to be able to perform an LCA. It can thus be concluded that this SCE required at the very least 160 respondents.

3.6. Data collection

To reach the minimum sample size, various municipalities and societal organizations had been contacted to help distribute the survey. The municipality of Den Bosch, Nijmegen, Tilburg and Veldhoven helped with the distribution. Different channels were used (see Table 16), which resulted in a total of 160 completed questionnaires. In addition, societal organizations of Tilburg (Contour de Twern) and Eindhoven (Expat center and International creative women) helped with the distribution of the survey. The survey was also shared via the social media pages of study association SERVICE. Moreover, the survey was shared via the researchers' own social media pages (LinkedIn and Facebook) and personal network (family, friends and acquaintances). Lastly, some students from Yuverta (vocational education) were also personally asked to fill in the survey. However, the reach of these channels is unknown. In total, via these channels another 163 fully filled out surveys were collected.

Table 15 - Distribution channels

	Channel(s)	Reach	Completed surveys
Municipality			
Den Bosch	Newsletters	1,300	13
Nijmegen	Paid Facebook campaign	19,000	96
Tilburg	Social media (Instagram) Own network (colleagues) Management team city center (including businesses, cultural organizations, residents and real estate owners)	Unknown	36
Veldhoven	Social media (Facebook and Instagram)	Unknown	15
(Societal) organizations			
Tilburg	Own network	Unknown	Unknown
Eindhoven	Own network Social media (Facebook, Instagram and LinkedIn of SERVICE)	Unknown > 350	Unknown Unknown
Researchers' network			
	Social media (Facebook and LinkedIn) Own network Yuverta	> 1,500 +/- 200 20	Unknown Unknown Unknown

The data collection took place from the 16th of October until the 26th of November 2021. In total, 882 respondents started the questionnaire, of which 323 completed the whole survey. A part of the respondents (18.4%) stopped the questionnaire before giving consent. They might have had no intention to fill in the survey, or thought the survey was too lengthy. However, most of the respondents that stopped the questionnaire, stopped before the choice tasks (33.1%). This could be due to the fact that the explanation of the choice tasks may have included difficult words, was too lengthy or people thought the choice tasks would be too complex. On average, it took respondents approximately 15 minutes to complete the survey.

Only the surveys that were fully filled out were included in the data analysis. Moreover, people that filled out the survey under four minutes were deleted from the dataset, as they may not have filled in the survey seriously. This resulted in a total of 321 respondents, which is more than the minimum sample size required.

3.7. Data preparation

Before being able to analyze the data, the choice data, context and personal data needed to be prepared. The process of the data preparation is explained in this sub chapter.

Before being able to perform statistical analysis on the choice data, the data needed to be coded and transformed into the right data structure. First of all, the choice data could be dummy coded or effect coded. The model fit is the same, but there is a difference in interpretation (Hensher et al., 2015d). Although generally dummy coding is preferred, effect coding is beneficial for interpretation in multinomial logit models (Zhou, 2020). The utilities in effect coding are compared to the grand mean, whereas in dummy coding these are compared to the base level of an attribute. In effect coding it is thus possible to state the effect of each attribute level, which is less clear in dummy coding as the levels are compared to the base level. In addition, there was no clear base level in most of the attributes, therefore effect coding made more sense here. Hence, it was chosen to effect code the attributes. In order to do so, new variables had been created for the attributes with 3 levels, resulting in Table 17.

Table 16 - Effect coding of process attributes

Attribute	Level	Label	Variable 1	Variable 2
Participation channel	Level 1	Offline	1	
	Level 2	Online	-1	
Level of involvement	Level 1	Be informed	1	0
	Level 2	Give advice	0	1
	Level 3	Co-decide	-1	-1
Collective/individual	Level 1	Collective	1	
	Level 2	Individual	-1	
Frequency of involvement	Level 1	1 instance	1	0
	Level 2	2-5 instances	0	1
	Level 3	>5 instances	-1	-1
Time requirement	Level 1	<15 min.	1	0
	Level 2	15-60 min.	0	1
	Level 3	>60 min.	-1	-1
Feedback	Level 1	No feedback	1	0
	Level 2	Feedback about outcomes	0	1
	Level 3	Feedback about outcomes and decision-making process	-1	-1

Secondly, the data extracted from LimeSurvey needed to be transformed into the right data structure for the statistical package Nlogit. Instead of having each row representing a single respondent (wide format), Nlogit requires several rows to represent one respondent (long format), as each row represents an alternative within the choice sets (Hensher, Rose, & Greene, 2015b). The data had been transformed from a wide to a long format using a Python code (see Appendix D: Python code).

As mentioned before, the choice sets did not include a 'no preference' option, but an additional question that represents this null alternative. Therefore, two datasets had been created. One only with the preferred profiles (conditional choice), and one that also included the 'no preference' option (unconditional choice). When respondents answered that they did not want to participate if invited in real life, they actually choose the null alternative instead of one of the two alternatives. The two datasets have different formats, as can be seen in Table 18 and Table 19.

Table 17 - Data structure for Nlogit (conditional choice)

Row	resp	id	set	task	prof	choice	Chan	LoI1	…	FB2
1	281	110	4	1	2	1	-1	0		-1
2	281	110	4	1	11	0	-1	1		1
…										
16	281	110	4	8	10	0	-1	0		0

Table 18 - Data structure for Nlogit (unconditional choice)

Row	resp	id	set	task	prof	choice	const	Chan	LoI1	…	FB2
1	281	110	4	1	2	0	0	-1	0		-1
2	281	110	4	1	11	0	0	-1	1		1
3	281	110	4	1	0	1	1	0	0		0
…											
25	281	110	4	8	0	1	0	0	0		0

Table 18 shows a part of the data structure of the conditional choice. Each respondent has a unique id code ('id'). For each respondent, 16 rows were created ('row'), indicating the 16 profiles that have been presented to the respondent. The column 'set' shows which set of profiles this was. The column 'task' indicates the choice task (1 to 8) and 'prof' indicates the specific profile that was shown to the respondent. One of these profiles was chosen by the respondent, which is indicated with a 1 in 'choice'. In this specific example, respondent 281 has chosen profile 2 in the first task of choice set 4. Each profile has its own characteristics, which are included in 'Chan' (channel) to 'FB2' (feedback).

In Table 19 the data structure for the unconditional choice is presented, which includes an extra column 'const' in comparison to Table 18. Moreover, for each choice task, a third alternative is added, namely the 'no preference' alternative, therefore resulting in 25 rows for each respondent instead of 16. In this example, respondent 281 choose the null alternative. This is represented in 'const' with a 1. In addition, the null alternative is indicated with a 0 in 'prof' and the characteristics are marked with a 0 to indicate missing values.

In addition, the context and personal data needed to be prepared. First of all, the context variables are recoded. Since the context variables are included as interactions with the process attributes in the logit models, it was chosen to use dummy coding, which makes it easier to interpret the results. This is easier because when multiplying two effect coded variables, the base level is coded with a -1, which means that when two base levels are multiplied, the results are the same for when the levels coded as 1 are multiplied; they are both 1. Therefore, it is unclear which level is associated with the coding in the case of interaction between two effect coded variables. Since each attribute only had two levels, they were easily recoded into dichotomous attributes (see Table 20).

Table 19 - Dummy coding of context attributes

Attribute	Level	Label	Variable 1
Topic	Level 1	Housing	0
	Level 2	Greenery	1
Scale	Level 1	Neighborhood	0
	Level 2	City/Village	1

Secondly, the personal data were first checked for outliers and were recoded for statistical analysis. First of all, the string variables were converted to numeric values. If observations for a category were low, they were recoded into fewer categories, which was the case for 'level of education' and 'ethnicity'. In addition, the variable 'age' was recoded to be able to compare the sample with the Dutch population. Dichotomous variables had been transformed into dummy variables, as these are easier to interpret in bivariate analyses and most of them have a clear base level. Table 25 gives an overview of the general transformations of socio-demographic characteristics, social factors and participation factors. The other variables needed additional transformations, which is further explained below.

Table 20 - Preparation of socio-demographic characteristics, social factors and participation factors

Variables	Code	Recoded levels for analysis
Socio-demographic characteristics		
Age	0	<20 years old
	1	20-40 years old
	2	40-65 years old
	3	65+
Gender	0	Female
	1	Male
Education level	0	Low
	1	High
Ethnicity	0	Not Dutch
	1	Dutch
Length of residence	0	<5 years
	1	5-20 years
	2	20-30 years
	3	>30 years
Participation factors		
Previous participation	0	No
	1	Yes
Invitation channels	0	No
1. At the front door	1	Yes
2. Personal network		
3. Letter		
4. Telephone		
5. Mail		
6. Website		
7. Municipal app		
8. Social media		
9. Other		

The statements for extraversion, introversion, external efficacy and internal efficacy were checked for their reliability using a Cronbach's alpha test. The results are shown in Table 22. If the Cronbach's alpha score is higher than 0.7, it means that the statements are internally consistent and can therefore be merged (Taber, 2018). Otherwise, they can be included as separate variables.

Table 21 - Reliability checks for statements of personality traits and political efficacy

Attribute	Cronbach's alpha score
Extraversion	0.519
Openness to change	0.391
External efficacy	0.827
Internal efficacy	0.836

Since the statements of external and internal consistency had an acceptable internal consistency, they were combined by computing a new variable with the mean of the two statements. This new variable represents a scale of internal and external efficacy; when the score is higher, the internal/external efficacy is higher. Extraversion and openness to change had an unacceptable internal consistency and were therefore included as four separate statements. All Likert scales were reversed for easier interpretation, so a higher score represents agreement with the statements.

In addition, it was checked with Q-Q plots if the Likert scales were normally distributed, which are displayed in Appendix E: Q-Q plots. If so, it can be considered to be an interval scale, which affects the type of bivariate analysis that is suitable for these variables. The Q-Q plots of 'external efficacy', 'introvert', 'open to change' and 'not open to change' showed that the data only slightly deviated from the linear line and were therefore considered to have an interval scale. The data from 'Extravert' and 'internal efficacy' deviated more strongly from the linear trend, but were still assumed to be normally distributed and were thus also included as an interval scale. This choice is based on the fact that in the bivariate analyses it makes more sense to compare the means of these scales than to compare each value, as it is unclear what each value exactly represents.

Table 23 gives an overview of the transformed psychological and political factors.

Table 22 - Preparation of psychological and political factors

Variables	Code	Recoded levels for analysis	Measurement scale
Psychological factors			
Extravert	0 … 4	Strongly disagree … Strongly agree	Interval
Introvert	0 … 4	Strongly disagree … Strongly agree	Interval
Open to change	0 … 4	Strongly disagree … Strongly agree	Interval
Not open to change	0 … 4	Strongly disagree … Strongly agree	Interval
Political factors			
Internal efficacy	0 … 4	Low internal efficacy ... high internal efficacy	Interval
External efficacy	0 … 4	Low internal efficacy ... high internal efficacy	Interval

To measure political and societal engagement, respondents indicated for a list of ten organizations whether they were not involved, passively involved or actively involved. Therefore, ten categorical variables were included in the original data. These variables were merged into two new variables (see Table 24), combining the statements as follows. If a respondent was not involved in any organization, they were not politically and not societally engaged. If a respondent indicated for one or more of the organizations that they were passively involved, they were passively politically or societally engaged. The same counts for active involvement; respondents were actively engaged when they indicated this for one or more of the organizations.

Table 23 - Preparation of social factors

Variables	Code	Recoded levels for analysis
Political engagement	0	Not involved
	1	Passively involved
	2	Actively involved
Societal engagement	0	Not involved
	1	Passively involved
	2	Actively involved

The motivations (not) to participate included an 'other' option, which were qualitatively assessed by two researchers to determine if these could be categorized (see Appendix F: Categorization of other motivations). Categories that were indicated by more than 10 respondents were included as separate variables, resulting in three additional motivations namely 'affects own living environment', 'no trust in municipality/participation process' and '(the feeling) that nothing is done with input'. The other motivations remained in the 'other motivations to participate' and 'other motivations not to participate' variable. All motivations are included as dummy variables, as can be seen in Table 25.

Table 24 – Preparation of motivations (not) to participate

Variables	Code	Recoded levels for analysis
Motivations to participate	0	No
1. Interested in urban planning	1	Yes
2. Personal development		
3. Influence decisions		
4. Getting a financial compensation		
5. Affects own living environment		
6. Never want to participate		
7. Other motivations to participate		
Motivations not to participate	0	No
1. Not interested in urban planning	1	Yes
2. Not enough knowledge about urban planning		
3. Don't want to/too much effort		
4. No time		
5. No trust in municipality/ participation process		
6. (The feeling) that nothing is done with input		
7. Other motivations not to participate		

3.8. Analysis method

After preparing the data, statistical analysis could be performed to estimate the models. First of all, descriptive statistics were executed to explore the personal data, with the use of SPSS. Secondly, the choice data were analyzed with the statistical package Nlogit to measure the preferences for participation. Two choice models were estimated, namely the Multinomial Logit (MNL) model and the Latent Class (LC) model. Lastly, bivariate analyses were executed in SPSS to examine the relationship between the personal characteristics and the preferences for participation. Figure 8 gives an overview of the different steps in the analysis method. The theory behind logit models is further explained in this chapter, as well as why they are relevant for answering the main question of this study.

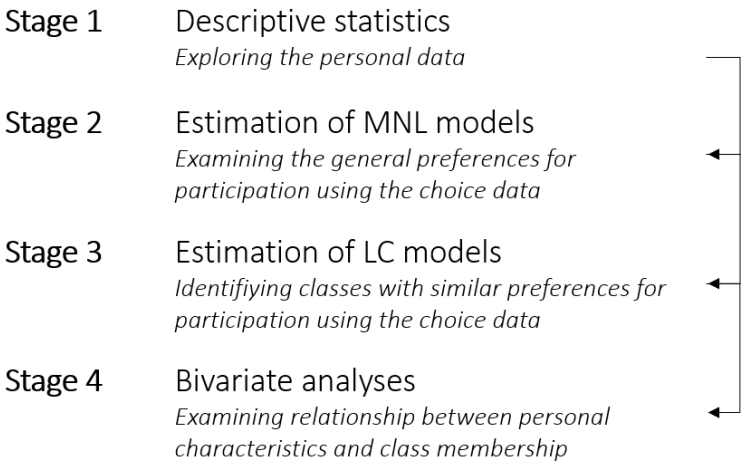

Figure 8 - Overview of all analysis steps

3.8.1. Introduction to discrete choice models

In stated choice experiments (SCE's), only observed effects can be measured, whereas there are also unobserved effects (e.g., choice is based on information that is not included in the SCE or on specific taste). Therefore, researchers will never observe the actual utility. In order to model choices, assumptions need to be made with regard to the unobserved effects. One of these assumptions is about the distribution of the unobserved effects. There are two families of distributions for the random component of the utility function, namely a multivariate normal distribution (used in probit models) and a multivariate generalized Extreme value (GEV) distribution (used in logit models). The properties of these distributions result in different coefficients in the utility functions, as they affect the normalization process that is needed for the probit and logit models. Normalization of the scale and the utility levels is necessary to allow estimation of the models, because discrete choice models can only compare utilities and the scale of the utility functions cannot be derived from the observable information. Therefore, one of the main differences between the probit and logit models is the interpretation of the models. In general, the coefficients of the logit model are slightly larger than the coefficients of a similar probit model. Besides the assumption about the distribution, logit models also assume that the variances of the unobserved effects are the same for all alternatives. Therefore, logit models are easier to estimate than probit models. Logit models are thus the most commonly used types of discrete choice models. Different types of logit models exist, such as the multinomial logit (MNL), the nested logit and the mixed multinomial logit model. The MNL model is the simplest logit model, because it restricts all covariances to be zero. Hence, in MNL models the random (unobserved) components are independently (covariances are zero) and identically (variances are constant) distributed (IID). This can also be referred to as a Gumbel distribution. There are different alternatives to the MNL model that are more advanced, as they can accommodate for scale and preference heterogeneity. One of these

advanced versions is the Latent Class (LC) model, which looks for classes of individuals with similar patterns of parameters (similar preferences) (Hensher, Rose, & Greene, 2015e). The basic MNL model and advanced LC model are used in this study. The MNL model is used to reveal the general preferences for participation and to find out which process characteristics affect these preferences and to what extent. The LC model is used to discover if there are different types of participants with different preferences, which can be characterized by certain personal characteristics. By knowing if there are different types of participants, participation can be designed to accommodate all types of participants, rather than focusing on the general preferences, so the process can be more inclusive. The two models are further explained in the following paragraphs.

3.8.2. The Multinomial Logit Model

The MNL model is a simple and stable method to study preferences. The model uses the following formula to estimate the probability that an individual *q* chooses alternative *i* in a choice set:

$$P_i = \frac{exp(v_i)}{\sum_{i' \in S} exp(V_{i'})} \quad (5)$$

Where:
P_i = Probability that alternative i is chosen
V_i = Structural utility of alternative i
S = Choice set

The probabilities of all alternatives sum up to one, meaning that if one alternative is more likely to be chosen, then the probability for the other alternative decreases automatically. This feature is also called the Independence from Irrelevant Alternatives (IIA), which means that the structural utility of one attribute is independent of the other alternatives in the choice set. Although this makes the MNL model easy to use, the IIA property is also one of the main limitations of the model. It is an undesirable feature because there may be similar alternatives in a choice set, that affect the choice probabilities of the others.

In choice modelling, the utilities and the estimated choice probabilities are linked to each other. However, their relationship is non-linear. Therefore, it is not possible to use ordinary least squares (OLS), as in linear regression models. Instead, the maximum likelihood estimation (MLE) is used to estimate the parameters in choice models. The parameters can be estimated by maximizing the log of the likelihood function. This is done because the likelihood function produces very small values that are difficult to handle by software. When taking the log, the values become larger. Thus, the following function is used (Hensher, Rose, & Greene, 2015c):

$$LL(\beta) = \sum_q \sum_i y_{iq} \ln (p_{iq}) \quad (6)$$

Where:
p_{iq} = Probability that individual q will choose alternative i
y_{iq} = 1: alternative i was chosen by q, 0: otherwise

In addition to estimating the parameters, the goodness-of-fit of the model is estimated by McFadden's Rho-Square, which is based on the log-likelihood function of the model and the null model.

$$\rho^2 = 1.0 - [\frac{LL(\beta)}{LL(0)}] \quad (7)$$

Where:
$LL(\beta) =$ Log likelihood using estimated parameters
$LL\ (0) =$ Loglikelihood using null model (with equal choice probabilities)

In the null model it is assumed that all choice probabilities are equal and all parameters are zero. Hence, p_{iq} is equal to $\frac{1}{\#alternatives\ in\ choice\ set}$. The higher the pseudo Rho-square, the better the predicted probabilities represent the observed probabilities and thus the model fit is better. Pseudo Rho-square values between 0.2 and 0.4 represent a decent fit (Hensher, Rose, & Greene, 2015f).

Lastly, the significance of the model should be calculated using the Likelihood Ratio Test (LRT). This test compares the difference between $LL(\beta)$ *to* $LL\ (0)$ to a Chi-square statistic:

$$-2\big(\mathrm{LL}(\beta) - \mathrm{LL}\ (0)\big) \sim \chi 2 \quad (8)$$

Where:
$LL(\beta) =$ Log likelihood using estimated parameters
$LL\ (0) =$ Loglikelihood using null model (with equal choice probabilities)
$\chi 2 =$ Chi square value for number of new parameters estimated in the estimated model

If the -2LL value is bigger than the critical Chi-square value, it means that the model is significant and thus the estimated model performs better than the null model.

In this study, the MNL model is first estimated. Four different MNL models were estimated (see Figure 9). Two with the dataset including the conditional choice and two with the dataset including the null alternative (unconditional choice). Both datasets include the choice data with their associated process attributes and interaction terms between the process and context attributes. This allows the estimation of the effect of the process attributes on individuals' choices as well as the combined effects of the process and context attributes. The interaction effects are created by multiplying the process attributes with the context attributes.

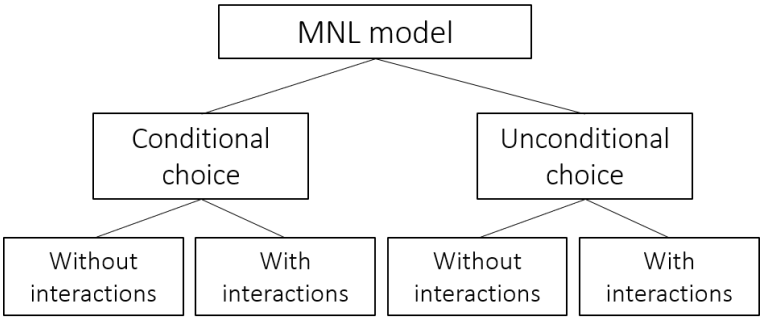

Figure 9 - Overview of the estimated MNL models

3.8.3. The Latent Class Model

As mentioned before, the LC model is an advanced version of the MNL model, which accommodates heterogeneity in the model. The LC model looks for classes of individuals with similar preferences. It is based on the assumption that there are different groups of individuals that have common parameters within their group and that the parameters have a discrete distribution. In the LC model it is assumed that individuals are sorted into a set of *C* classes, which can contain any particular individual. Each cluster of individuals has one set of parameters, thus the structural utility becomes:

$$V_{ic} = \sum_n \beta_{nc} * X_{in} \quad (9)$$

Where:
β_{nc} = Weight of attribute n for class c
X_{in} = Value of alternative i on attribute n
$c = 1,2, \dots C$

The central behavioral model of the LC model is:

$$P_{iqc} = \frac{exp(v_{iqc})}{\sum_{i\prime \in S} exp(V_{i\prime qc})} \quad (10)$$

Where:
P_{iqc} = Probability that individual q of class c will choose alternative i
V_{iqc} = Structural utility of alternative i for individual q of class c
S = Choice set

The number of classes cannot be tested directly, but it is possible to "test down" by using LRTs (Hensher, Rose, & Greene, 2015h). The analyst can use the Bayesian Information Criterion (BIC) or the Akaike Information Criterion (AIC) for this (see formula 13 and 14):

$$BIC = -2LL + KlnN \quad (11)$$

Where:
LL = Maximum log likelihood
K = Number of estimated parameters in the model
N = Sample size

$$AIC = -2LL + 2K \quad (12)$$

Where:
LL = Maximum log likelihood
K = Number of estimated parameters in the model

The AIC and BIC involve a trade-off between the simplicity of the model and the goodness-of-fit. The BIC has a higher penalty for the number of parameters (complexity) in the model than the AIC. Both scores are meaningless by themselves, but they can be compared with the other models to decide which model is the best. The best model is the one with the lowest AIC/BIC score (Fabozzi, Focardi, Rachev & Arshanapalli, 2014).

Besides estimating the parameters for the classes, the LC model also generates class membership probabilities. This allows for the assignment of individual q to the class with the highest probability. The probabilities are calculated based on the following formula:

$$P_{c|q} = \frac{P(Y_{q|c}) * H_c}{\sum_{c'} P(Y_{q|c}) * H_{c'}} \quad (13)$$

Where:
$P_{c|q}$ = Posterior probability that individual q belongs to class c
$P(Y_{q|c})$ = Predicted probability of choice observations Yq
H_c = Prior probability

Using bivariate analyses it can be examined whether there is a relationship between the personal characteristics of respondents and their class membership.

After the MNL model estimations, four LC models were estimated (see Figure 10). First of all, the number of classes and the probabilities that an individual belongs to a certain class were determined. Secondly, it was examined if there are differences between the classes with regard to personal characteristics using bivariate analyses (cross-tabulations with chi-square tests and independent samples t-test), based on the measurement scale of the variable (see Appendix G: Overview of bivariate analyses).

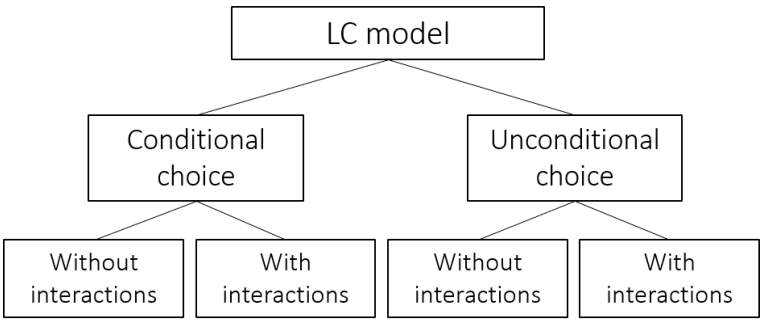

Figure 10 - Overview of estimated LC models

3.9. Conclusion

In this chapter the methodology of this study was described. First of all, it was explained which characteristics are included in the research, based on the literature review. A distinction was made between contextual-, process- and personal characteristics. The included contextual characteristics are urban planning topic and scale. The process characteristics that were included were the frequency of involvement, time requirement and level of involvement in the participation process, the channel used for participation and the feedback that is given after the participation process. For personal characteristics a distinction was made between socio-demographic characteristics (age, gender, level of education, ethnicity and length of residence), psychological factors (extraversion and openness to change), social factors (societal and political engagement), political factors (internal and external efficacy) and participation factors (previous participation, motivations (not) to participate and the preferred invitation channel). Secondly, the operationalization of the characteristics for the online survey was described. The context- and process characteristics were included as attributes in a stated choice experiment. Different alternative participation processes were created using an orthogonal fractional factorial design with 16 profiles. Each profile existed of a random combination of the different levels of the attributes. Respondents had to choose between two participation processes eight times. The choice tasks were followed by additional questions about respondents' personal characteristics. The survey was spread via several channels. In total, there were 321 valid responses (fully filled in surveys under 4 minutes). Thirdly, it was demonstrated how the data collected in the survey was transformed into the correct data structure for the statistical package Nlogit and prepared for statistical analyses in SPSS/Nlogit. Lastly, the steps for the statistical analyses were explained. The first step was the descriptive statistics to explore the personal data. The second and third step involved the estimations of two logit models, namely the Multinomial Logit Model and the Latent Class Model. By using logit models, the preferences for participation could be examined. The theory behind logit models was also further elucidated. The last step was to perform bivariate analyses in order to identify relationships between the preferences for participation and personal characteristics.

4. Results

In this chapter the results of the descriptive statistics, the Multinomial logit (MNL) model and the Latent Class (LC) model are shown and explained. First of all, the sample is described in terms of sociodemographic characteristics and compared to the Dutch population. Secondly, the other personal data are visualized and discussed. Finally, the results of the MNL and LC model are displayed, explained and compared to the findings of previous studies.

4.1. Sample representativeness

This subchapter compares the sample distribution with regard to sociodemographic characteristics to the distribution of the Dutch population to check if the sample is representative. Table 26 gives an overview of the data.

Table 25 - Sample distribution compared to Dutch population (Data Dutch population from CBS (2021b))

Characteristic	Categories	Dutch population %	Sample %	Freq.
Age	<20 years old	21.0	10.9	35
	20-40 years old	25.0	43.6	140
	40-65 years old	34.0	37.7	121
	65+	20.0	7.8	25
Gender	Male	49.7	52.6	169
	Female	50.3	46.4	149
Education level	Low	69.0	26.5	85
	High	30.0	73.5	236
Ethnicity	Dutch	75.4	93.4	299
	Not Dutch	14.6	6.6	21

Table 26 shows that the sample is not completely representative for the Dutch population on distribution of age, gender, level of education and ethnicity. The age of the sample ranges from 16 to 80 years old, with a mean of 38 years old. The largest age group in the sample is between 20 to 40 years old, whereas in the Dutch population the age group of 40 to 65 years old is the largest. When looking at the gender of the sample, it is close to an equal distribution. The sample includes slightly more male respondents than female respondents, which is vice versa in the distribution of the Dutch population. Moreover, more than two thirds of the respondents are higher educated, whereas in the Netherlands only one third of the population is higher educated. With regard to ethnicity, in the sample the percentage of people that consider themselves to belong to a different ethnicity than the Dutch is lower than in the Dutch population. Since the sample is not representative, the results should be carefully interpreted. It is however still possible to make general statements, since the LC models include socio-demographic characteristics.

4.2. Descriptive statistics

This subchapter gives an overview and description of the choice data and the other personal data that were collected in the survey. First the choice data are briefly analyzed, followed by the psychological factors, the social factors, political factors and lastly the participation factors.

4.2.1. Choice data and no-choice option

The sample consisted of 321 respondents, who each made eight choices, accumulating in a total of 2568 choices made. Of the 321 respondents, 208 respondents indicated at least once that they would not participate in the chosen process if they were invited in real life and a total of 699 choices referred to this no-choice option. Thus, in total, respondents choose the no-choice option 27.2% of the times. This indicates that generally, people were more likely to choose one of the participation processes than the no-choice option.

4.2.2. Length of residence

Besides the sociodemographic data that was compared with data from the Dutch population, respondents were also asked to indicate how long they have resided in their municipality. On average, the respondents have lived in their municipality for 21 years. The minimum length of residence is 1 month, and the maximum is 73 years. The length of residence was also divided into four groups (see Figure 11), which shows that the majority of the respondents (34.6%) have lived for 5 to 20 years in their municipality.

Figure 11 - Distribution of the length of residence

4.2.3. Psychological factors

Respondents were asked to indicate to what extent they agreed with two statements about extraversion and two statements about openness to change. As explained in chapter 3.7 it was not possible to merge the statements, therefore they were included as four separate variables. In Figure 12 the data for 'extravert', 'introvert', 'open to change' and 'not open to change' are visualized.

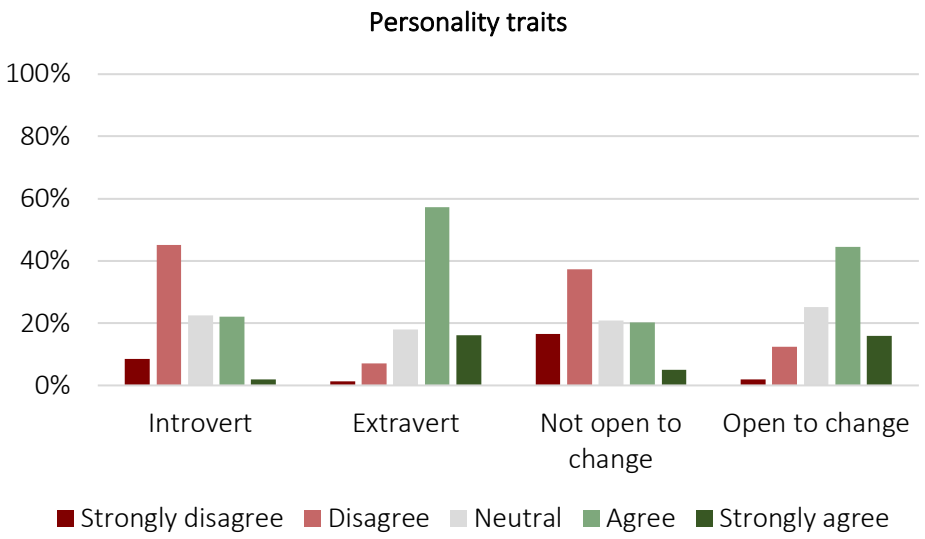

Figure 12 - Distributions of personality traits

It can be seen that most respondents see themselves as extravert (74% agree or totally agree) and open to change (60%) and less as introvert (24%) and not open to change (25%).

4.2.4. Social factors

In addition, respondents were asked to indicate if they were not involved, passively involved or actively involved in societal or political organizations. Figure 13 shows the distribution of the political and societal engagement of the respondents.

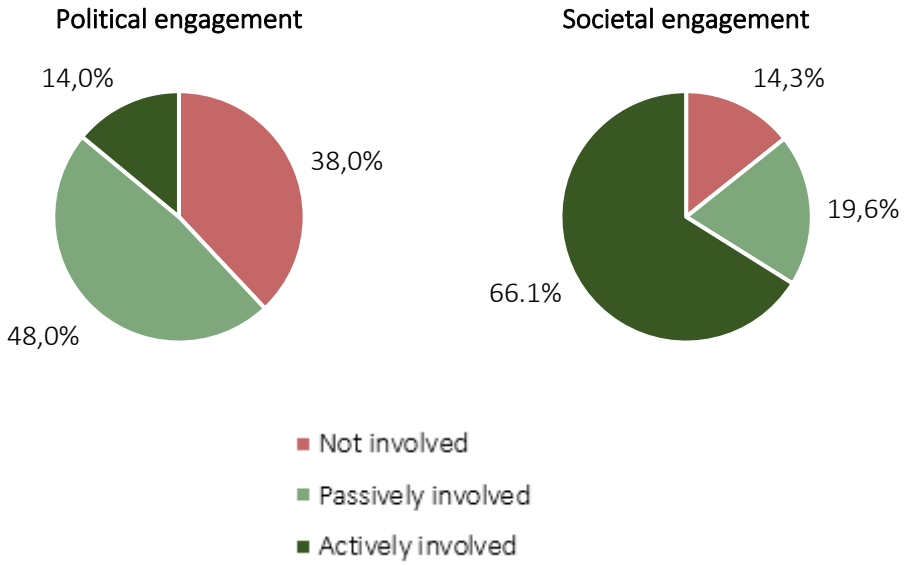

Figure 13 - Distributions of political and societal engagement

A large part of the sample is passively involved in political organizations and a minor part is actively involved. However, more than one third of the respondents are not involved at all. With regard to societal engagement, the majority of the respondents are actively involved. Only 14.3% of the respondents is not engaged in any societal organization.

4.2.5. Political factors

As mentioned in chapter 3.7 the statements regarding external efficacy and internal efficacy in the survey were combined into a scale of external and internal efficacy. The distributions are visualized in Figure 14.

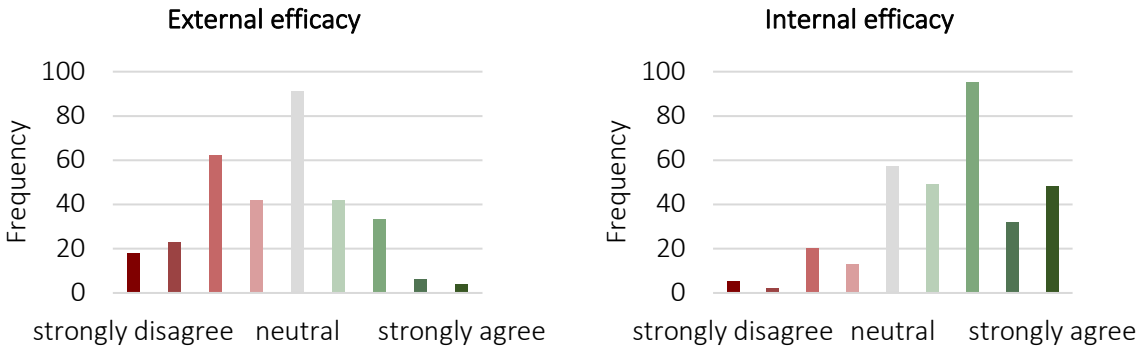

Figure 14 - Distribution of External efficacy and Internal efficacy (combined statements)

The combined statements of external efficacy have a mean of 1.74 (SD = 0.88), suggesting that respondents have a low external efficacy. Hence, most of them do not feel that they are enabled enough by the municipality to participate. On the other hand, respondents do have a high internal efficacy (M = 2.70, SD = 0.91), thus they are confident that they can play a role in participation in urban developments.

4.2.6. Participation factors

Respondents were asked if they had participated in urban developments before (see Figure 15).

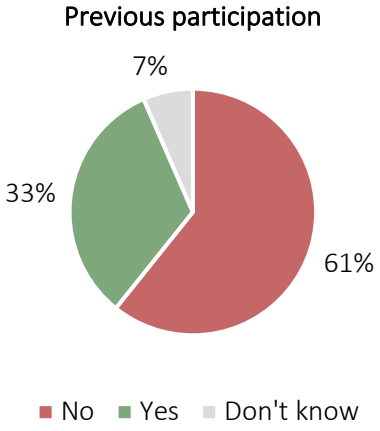

Figure 15 - Distribution of previous participation

It can be concluded that most of the respondents have never participated in urban developments before. One third of the respondents have joined a participation process at least once and a minority of the respondents do not know if they have ever participated before.

Respondents were also asked about their motivations to participate or not to participate. Figure 16 gives an overview of the motivations to participate.

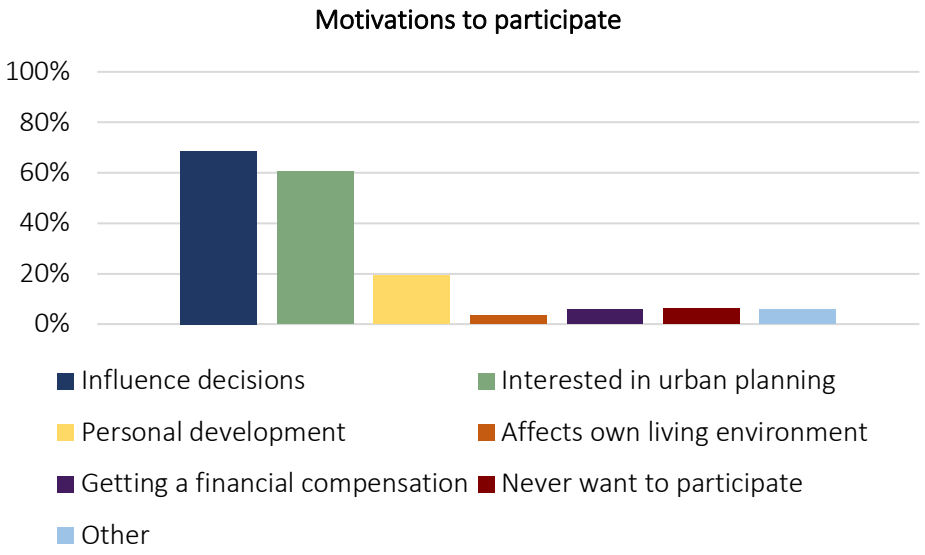

Figure 16 - Distribution of motivations to participate

Of the 321 respondents, 6% indicated that they would never want to participate, as shown in Figure 16. The majority of the respondents want to participate to influence decisions (69%) or because they are interested in urban planning (60%). A relatively small part of the respondents would participate to develop themselves (19%), to get a financial compensation (6%) or because the project affects their own living environment (3%). Other motivations to participate that were also mentioned were to be involved with your own living environment, to contribute, to stay informed, to provide local knowledge, being interested in participation and knowing that you can participate (see Appendix F: Categorization of other motivations)

Figure 17 shows the distribution of the motivations not to participate.

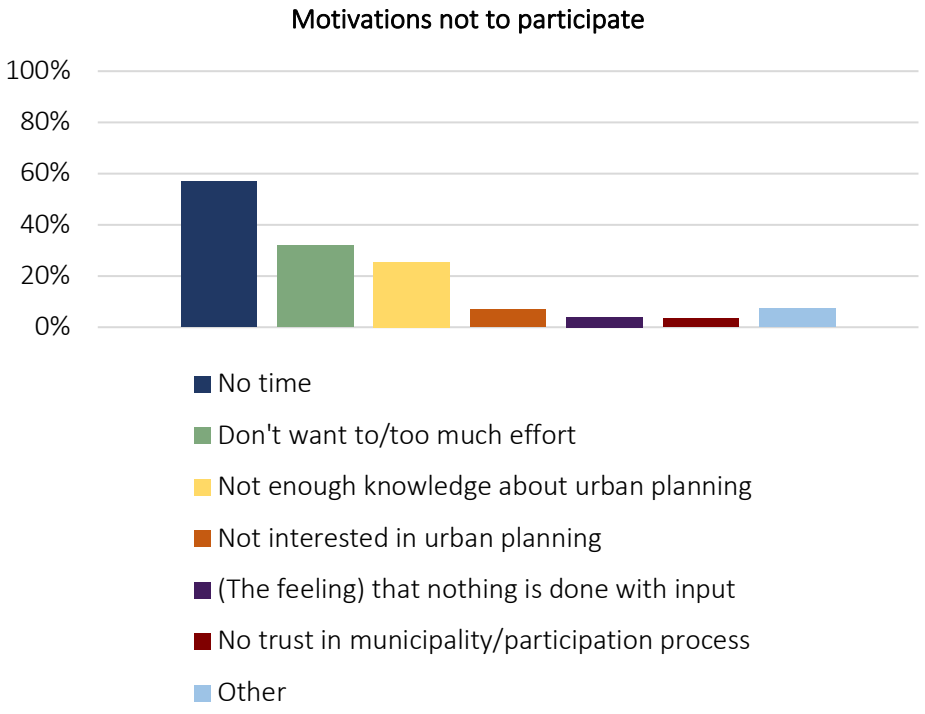

Figure 17 - Distribution of motivations not to participate

The most commonly chosen motivation not to participate is that people do not have the time to do so (57%). That participation takes too much effort (32%) and not having enough knowledge about urban planning (26%) are also common reasons not to participate. Not many respondents indicated that they would not want to participate because they are not interested in urban planning (7%). Some respondents also indicated that they did not want to participate because they had the feeling that nothing is done with their input (4%) or because they did not have trust in the municipality or the participation process (3%). Other reasons not to participate that were indicated by the respondents are that they are not interested in the project, they have the feeling that they have no influence, they are not aware that they can participate, they do not get enough possibilities to participate or because the process is not designed well (see Appendix F: Categorization of other motivations).

Lastly, it was asked how respondents would want to be invited for a participation process. Figure 18 visualizes the distribution of the chosen invitation channels.

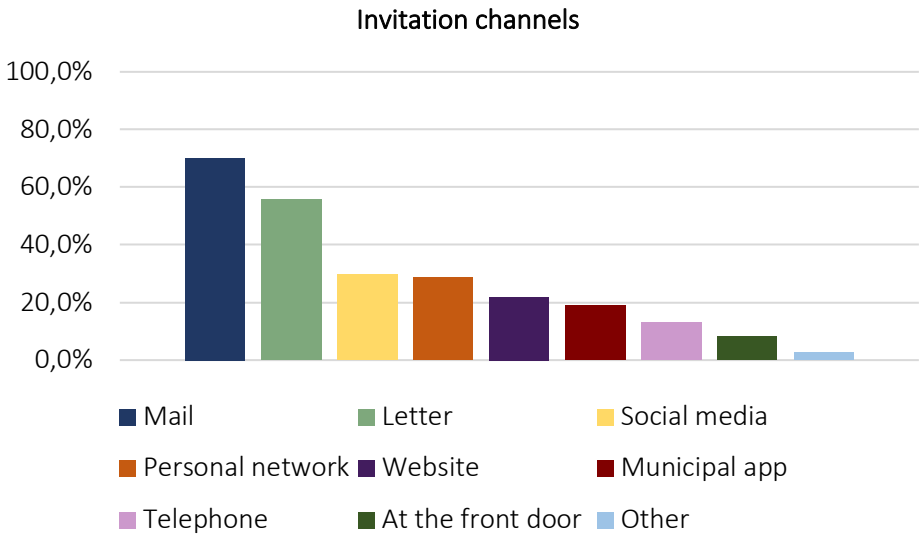

Figure 18 - Distribution of preferred invitation channels

It can be seen that the majority of the respondents prefer to be invited via an e-mail (70%) or via a letter (56%). This suggests that a personal invitation is preferred, which was also suggested by (Schlozman et al., 2018). In addition, being invited via social media (30%) or via their personal network (29%) is also quite often chosen. Receiving an invitation via telephone (WhatsApp or a call) (13%) or at the front door (8%) is the least preferred. Other invitation channels that were mentioned are the newspaper, public areas, the municipal newsletter, Teams and the neighborhood council.

4.3. Model results

This subchapter describes the estimations of the Multinomial Logit (MNL) and the Latent Class (LC) models. The models were estimated in the statistical package Nlogit. As mentioned in chapter 0, for each logit model four estimations were made; two models for the conditional choice (one with and one without interaction variables) and two models for the choice with the null alternative (one with and one without interaction variables). The models with interactions were run twice; first with all interactions, then only with the significant interactions, in order to create a parsimonious model. Only the results of the parsimonious models are displayed in this chapter. First of all, the results for the MNL models are presented, which are followed by the results of the LC model.

4.3.1. Multinomial logit model

An overview of the utilities (β), the significance levels (sign.) and the model fit statistics of the four different MNL models are given in Table 27. The complete output of the different estimations can be found in Appendix H: Nlogit output MNL models. First of all, the model fit statistics will be discussed. The model is statistically significant when X^2 < critical X^2. For an acceptable fit, the McFadden Rho-Square (ρ^2) should be between 0.2 and 0.4 (Hensher et al., 2015f). Secondly, the significance levels indicate whether the process attribute had a significant influence on respondents' choice behavior and thus on their preferences for participation. The attribute is significant if $p < 0.1$. Lastly, the coefficients (β) represent the part-worth utilities of the different attribute levels. The Nlogit output only gave the parameters for the coded variables. The second/third level could be calculated based on the first (two) coefficient(s), by multiplying (the sum of) the coefficient(s) by -1, since the mean of the part worth utilities is equal to one. The coefficients should be interpreted in comparison to one another. The highest positive coefficient is the most preferred level (Hensher et al., 2015f).

Table 26 - Summary of output MNL models

		Conditional choice with main effects		Conditional choice with interactions		Unconditional choice with main effects		Unconditional choice with interactions	
Attributes	**Levels**	**β**	**Sign.**	**β**	**Sign.**	**β**	**Sign.**	**β**	**Sign.**
Process attributes									
No choice		-	-	-	-	-0.06	n.s.	-0.06	n.s.
Channel	Offline	-0.04	n.s.	-0.04	n.s.	-0.15	n.s.	-0.04	n.s.
	Online	0.04	-	0.04	-	0.15	-	0.04	-
Level of involvement	Be informed	-0.28	***	-0.29	***	-0.26	***	-0.26	***
	Give advice	0.13	***	0.24	***	0.10	**	0.10	**
	Co-decide	0.14	-	0.04	-	0.16	-	0.16	-
Collective/ individual	Collective	-0.10	***	-0.11	***	-0.18	***	-0.13	***
	Individual	0.10	-	0.11	-	0.18	-	0.13	-
Frequency of involvement	1 instance	0.25	***	0.25	***	0.26	***	0.26	***
	2-5 instances	0.15	***	0.15	***	0.18	***	0.18	***
	>5 instances	-0.41	-	-0.41	-	-0.44	-	-0.44	-
Time requirement	<15 min.	0.31	***	0.32	***	0.35	***	0.35	***
	15-60 min.	0.09	**	0.16	***	0.03	n.s.	0.03	n.s.
	>60 min.	-0.40	-	-0.48	-	-0.38	-	-0.38	-
Feedback	No feedback	-0.69	***	-0.70	***	-0.71	***	-0.71	***
	Feedback about outcomes	0.24	***	0.16	***	0.29	***	0.29	***

	Feedback about outcomes and decision-making process	0.44	-	0.54	-	0.42	-	0.42	-
Interactions between process and context attributes										
Scale * Level of involvement	Give advice * City/village			-0.20	**			-	-
	Co-decide * City/village			0.20	-				
Scale * Collective/ Individual	Collective * City/village			-	-			-0.10	*
	Individual * City/village							0.10	-
Scale * Time requirement	15-60 min. * City/village			-0.13	*			-	-
	>60 min. * City/village			0.13	-			-	-
Scale * Feedback	Feedback about outcomes * City/village			0.16	**			-	-
	Feedback about outcomes and decision-making process * City/village			-0.16	-			-	-
Model fit statistics										
LL(B)		-1548.90		-1543.09		-2580.50		-2579.28		
LL(0)		-1780.00		-1780.00		-2821.24		-2821.24		
ρ^2		0.130		0.133		0.085		0.086		
ρ^2 adjusted		0.126		0.129		0.083		0.084		
Likelihood ratio test	X^2 df Critical X^2 (p = 0.05)	462.2 10 18.3		473.83 13 22.36		481.47 11 19.68		483.9 12 21.03		
*Note. *** p < 0.01, ** p < 0.05, *p < 0.1, n.s. = not significant.*										

The model fit statistics in Table 27 indicate that all models are significant. In addition, the model fit of all models are quite low ($\rho^2 < 0.2$). Hence, the models explain the choice behavior in a limited way. The models including interaction effects explain the data slightly better than the models without interactions, also when the efficiency of the models is taken into account (see ρ^2 adjusted) . There may be more information within the data, therefore it is interesting to also look at more advanced logit models, such as the LC model, which may result in a higher model fit as it takes into account heterogeneity in the data, allowing to identify the distinction between different types of participants.

For the interpretation of the coefficients and significance levels, it has been decided to only explain the results from the second MNL model (conditional choice with interaction effects) for several reasons. First of all, the MNL models with the unconditional choice show that there is no significant effect for

the no-choice option. Hence, respondents were not more likely to choose one of the participation processes nor to choose the no-choice option, indicating that the choice not to participate in any of the processes may be irrelevant. Additionally, the model fit for the MNL models with the conditional choice were higher than for the models with the unconditional choice. Lastly, the conditional choice with interaction effects captures more information than the first model that only includes the main effects and has a slightly larger ρ^2 adjusted.

The significance levels in Table 27 show that all attributes are found to be significant, except the channel of participation. This means that there is no evidence that the participation channel has an effect on the choice for participation processes. The level of involvement, frequency of involvement and time requirement in the participation process, whether there is collective or individual participation and the feedback that is given after the process do influence the overall utility for participation processes and thus affected respondents' choices. In addition, it can be seen that the scale of the project influences respondents' preferences to some extent, as it affects the preferences for the level of involvement and the time requirement of the participation process and the feedback given afterwards. No significant effect was found for the topic of the urban development process.

Based on the highest and lowest part-worth utility of each attribute the range and thus the relative importance of the attribute was calculated. A high range indicates that the attribute has a stronger influence on the choice behavior of the respondents in comparison to the other attributes. Thus, the relative importance of that attribute is high. Table 28 gives an overview of the relative importance of the attributes.

Table 27 - Relative importance of attributes

Attribute	Range	Relative importance
Feedback	1.24	28%
Time requirement	0.80	18%
Frequency of involvement	0.66	15%
Level of involvement	0.53	12%
Scale * Level of involvement	0.40	9%
Scale * Feedback	0.32	7%
Scale * Time requirement	0.26	6%
Collective/individual	0.22	5%

From Table 28 it can be concluded that feedback is considered to be the most important factor affecting the preferences of respondents, followed by the time requirement and frequency of involvement. Whether participation takes place collectively or individually has the least influence on respondents' choices. The interactions with scale also have a relatively small effect in comparison to the other attributes.

By comparing the part-worth utilities of the different attribute levels of each attribute, it can be seen which level is preferred. A negative part-worth utility indicates that this level is the least preferred in comparison to the other attribute levels. The part-worth utilities of the interaction variables should be interpreted differently. Since the context variables are dummy coded, the interaction coefficients indicate whether the utility of the process attribute decreases or increases when the context changes in comparison to its base level. In the case of scale, the city scale is compared to the neighborhood scale (which is the base level). To simplify the interpretation of the part-worth utilities, they are visually presented in Figure 19.

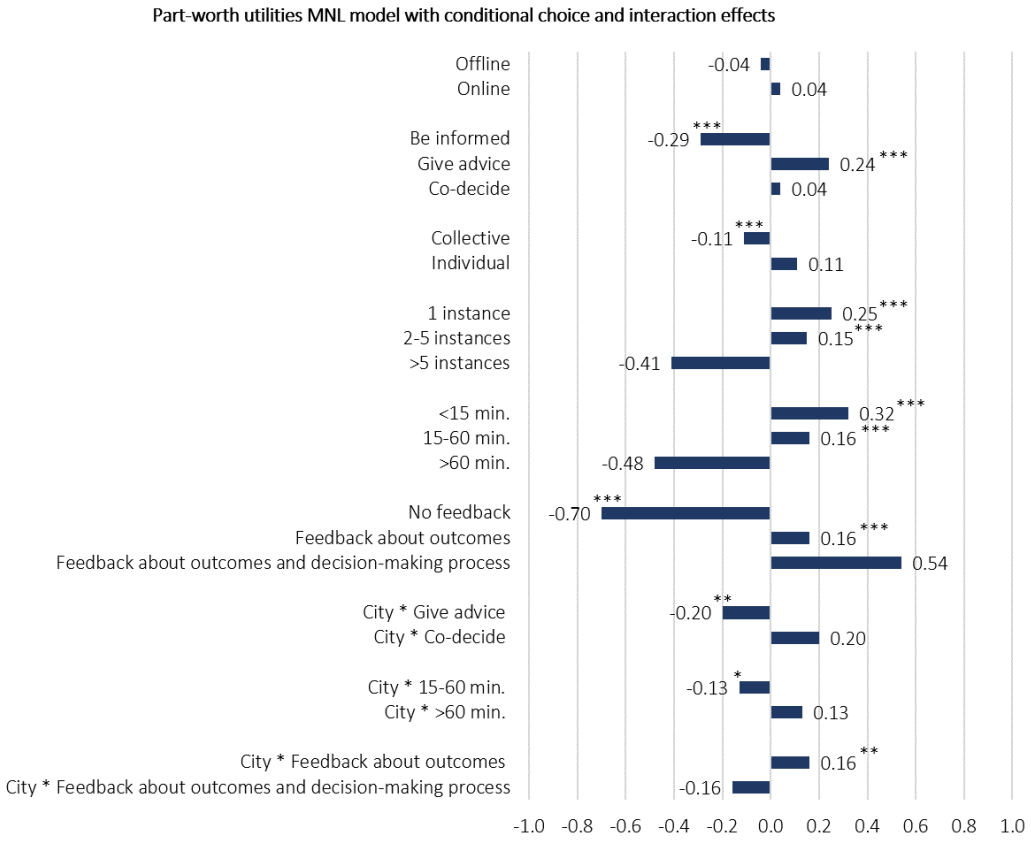

Figure 19 - Visualization of part-worth utilities and significance levels of MNL model with conditional choice and interaction between process and context attributes

It can be concluded that generally respondents prefer to give advice, followed by co-decide and being informed is negatively assessed. Moreover, individual participation is preferred over collective participation. In addition, participation processes are preferred to take place once and take less than 15 minutes per instance. Thus, the intensity of participation should be low. Structural participation (more than five instances and longer than 60 minutes per instance) is the least preferred. As mentioned before, feedback is the most important attribute. Getting no feedback at all is negatively assessed. Receiving feedback about the outcomes and the decision-making process is the most preferred. With regard to the interaction effects, it can be concluded that when the project is on a city scale, rather than on the neighborhood scale, people prefer to co-decide instead of giving advice. Moreover, the preference for feedback about outcomes and decision-making process reduces, but elaborate feedback is still preferred. In addition, the utility for participating 15-60 minutes decreases.

4.3.2. Latent Class model

After running the MNL models and finding out about the general preferences for participation, the LC models were estimated to identify whether there are different groups within the sample with similar preferences for participation. Again, four models were run. An overview of the model statistics of all estimated LC models can be found in Appendix I: Model fit statistics all LC models. Only the results of the LC model with the unconditional choice and interaction effects are shown in this section for two reasons. First of all, the models with the unconditional choice had a higher model fit than the conditional models, also when the efficiency of the models was taken into account. Secondly, although the models had a similar model fit, the model with the unconditional choice with interaction effects contains more information than the model with the unconditional choice with only main effects.

To identify the optimal number of classes for the LC model with the unconditional choice and interaction effects, the Akaike (AIC) and Bayesian (BIC) Information Criteria were calculated (as explained in section 3.8). These values were calculated based on the model with all interaction effects. If both AIC and BIC scores are lower in comparison to the base model (with one class), then those number of classes are preferred. Table 29 gives an overview of the AIC and BIC for the LC model with different number of classes.

Table 28 - Overview of BIC and AIC values per number of classes for LC model

	1 class	2 classes	3 classes*	4 classes*
BIC	5327.46	4945.29	4935.04	5024.64
AIC	5203.00	4692.60	4554.12	4515.50
*Note. *One class contains extreme values and has no significant attributes*				

Although three classes would be the most preferred when looking at the AIC and BIC values, one of the classes included extreme values, had no significant coefficients at all and only a small number of respondents belonged to this class. Therefore, this model was disregarded. The model with two classes will be further elaborated.

Similar to the MNL models with interactions, the LC model was run twice; first with all interactions and second with only the significant interactions, in order to have a parsimonious model. The estimated results of the parsimonious LC model with two classes are presented in Table 30. The full Nlogit output can be found in Appendix J: Nlogit output LC model with unconditional choice and significant interaction effects.

Table 29 - Summary of output LC model with two classes

		Class 1 (Engaged citizens)		Class 2 (Passive citizens)	
Attributes	Levels	β	Sign.	β	Sign.
Process attributes					
No choice		-1.43	***	1.58	***
Channel	Offline	0.06	n.s.	-0.26	**
	Online	-0.06	-	0.26	-
Level of involvement	Be informed	-0.15	*	-0.38	**
	Give advice	0.19	***	-0.18	n.s.
	Co-decide	-0.04	-	0.56	-
Collective/ individual	Collective	-0.09	n.s.	-0.42	***
	Individual	0.09	-	0.42	-

Frequency of involvement	1 instance	0.09	n.s.	1.05	***
	2-5 instances	0.21	***	-0.09	n.s.
	>5 instances	-0.31	-	-0.96	-
Time requirement	<15 min.	0.16	**	1.17	***
	15-60 min.	0.11	**	0.08	n.s.
	>60 min.	-0.28	-	-1.24	-
Feedback	No feedback	-0.78	***	-0.64	***
	Feedback about outcomes	0.28	***	0.49	***
	Feedback about outcomes and decision-making process	0.50	-	0.15	-
Interaction between context and process attributes					
Topic * Collective / Individual	Greenery * Collective	0.26	***	-0.36	**
	Greenery * Individual	-0.26	-	0.36	-
Topic * Frequency of involvement	Greenery * 2-5 instances	0.11	n.s.	0.56	***
	Greenery * >5 instances	-0.11	-	-0.56	-
Topic * Feedback	Greenery * Feedback about outcomes	-0.09	n.s.	-0.35	**
	Greenery * Feedback about outcomes and decision-making process	0.09	-	0.35	-
Scale * Channel	City * Offline	-0.16	**	0.26	**
	City * Online	0.16	-	-0.26	-
Scale * Level of involvement	City * Be informed	-0.34	***	-0.05	n.s.
	City * Co-decide	0.34	-	0.05	-
Scale * Collective / Individual	City * Collective	-0.18	**	0.00	n.s.
	City * Individual	0.18	-		
Class probabilities		0.605	***	0.395	***
Model fit statistics					
LL(B)		-2292.51			
LL(0)		-2821.24			
ρ^2		0.19			
ρ^2 adjusted		0.18			
Likelihood ratio test	X^2	1057.45			
	df	35			
	Critical X^2 (p = 0.05)	49.80			

*Note. *** p < 0.01, ** p < 0.05, * p < 0.1, n.s. = not significant.*

The model fit statistics show that the model is significant (X^2 < Critical X^2) (Hensher et al., 2015f). Moreover, the model fit (ρ^2 adjusted) is higher in comparison to the MNL model, thus the LC model explains the choice behavior better.

In contrast with the MNL model, the no-choice option is significant in the LC model. The first class of the LC model has a significant negative coefficient for the no-choice option, meaning that this group is more likely to choose one of the two participation processes than the null alternative. Thus, this group is more inclined to participate. The majority of the respondents belongs to this class (60.7%). This class will therefore be labelled as the 'Engaged citizens'. The second class has a significant positive coefficient for the constant, therefore implying that this class is less inclined to participate as they were more likely to choose none of the participation processes. Henceforth, this group is referred to as the 'Passive citizens'.

Based on the coefficients, the relative importance of the attributes was calculated for both classes. Table 31 gives an overview.

Table 30 - Relative importance of attributes for 'Engaged citizens' and 'Passive citizens'

Engaged citizens	Range	Relative importance	Passive citizens	Range	Relative importance
Choice / No choice	2.87	36%	Choice / No choice	3.15	22%
Feedback	1.29	16%	Time requirement	2.41	17%
City * Be informed	0.68	9%	Frequency of involvement	2.00	14%
Greenery * Individual	0.52	7%	Feedback	1.13	8%
Time requirement	0.44	6%	Greenery * 2-5 instances	1.12	8%
Frequency of involvement	0.40	5%	Level of involvement	0.95	7%
City * Individual	0.36	5%	Collective/ Individual	0.84	6%
Level of involvement	0.34	4%	Greenery * Collective	0.72	5%
City * Online	0.32	4%	Greenery * Feedback about outcomes	0.7	5%
Greenery * 2-5 instances	0.22	3%	Channel	0.53	4%
Greenery * Feedback about outcomes	0.18	2%	City * Offline	0.52	4%
Collective/ Individual	0.17	2%	City * Be informed	0.1	1%
Channel	0.12	2%	City * Collective	0	0%

It can be concluded that for the 'Engaged citizens' feedback plays the largest role in their choice behavior. In addition, the scale and the topic of the process has quite an impact on their preferences for the method of participation, whereas in general they do not have a specific preference for the participation method. For 'Passive citizens' the intensity of participation (time requirement and frequency of involvement) influences their choice for the participation process the most, followed by the feedback. In contrast with the 'Engaged citizens', the scale of the project has the least influence on their choice behavior, whereas the topic does play a larger role.

In order to better be able to interpret the coefficients, the part-worth utilities are visualized in Figure 20.

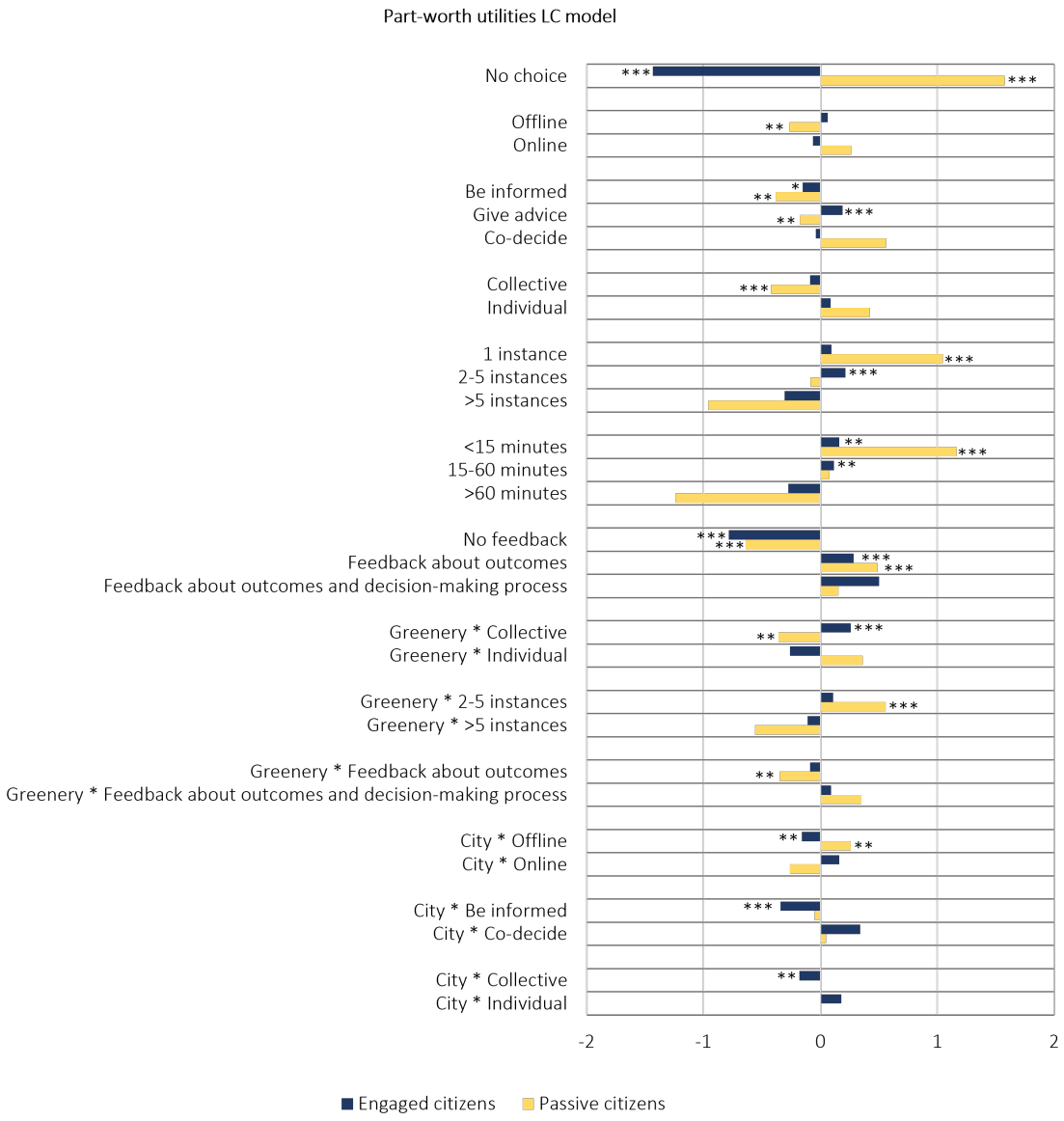

Figure 20 – Visualization of part-worth utilities and significance levels of the LC model with two classes

It can be seen that the 'Engaged citizens', which are more inclined to participate, prefer to give advice, to participate two to five times for less than 15 minutes and to receive feedback about the outcomes and the decision-making process after participating. Getting no feedback has a significant negative effect on their preferences. Especially the feedback they receive affects their preferences strongly, as well as the frequency of involvement. Hence, for this group it is essential that participation is not too time consuming and to give elaborate feedback after the participation process. The channel and participating collectively or individually do not affect their preferences. The scale as well as the topic of the project do affect their preferences. As mentioned before, the 'Engaged citizens' generally do not have a specific preference for participating collectively or individually. However, when the project is about greenery, rather than housing, they prefer to participate collectively, which is also preferred when the project is on a neighborhood scale in comparison to a city scale. In addition, 'Engaged citizens' prefer to give advice and to participate offline when the project involves the neighborhood, whereas they prefer to co-decide and participate online when the project involves the city.

The 'Passive citizens', which are less inclined to participate, strongly prefer to participate once and less than 15 minutes. As mentioned before, the time requirement plays the largest role in their choice behavior. In addition, they prefer to co-decide and to participate online and individually. The feedback also has quite an impact on their choice behavior. Receiving no feedback at all, negatively influences their preferences. In contrast to the 'Engaged citizens', this group prefers to receive feedback about the outcomes over receiving feedback about the outcomes as well as the decision-making process. Hence, people that are less inclined to participate, may participate sooner if participation takes place occasionally and does not take much time. Although they do not want to put in a lot of effort, they do want to have decision-making power. With regard to the interaction effects, it can be seen that the topic of the project mostly affects the preferences for participation of 'Passive citizens'. When the urban development involves greenery, rather than housing, then their prefer to participate individually is strengthened. Moreover, the utility for 2-5 instances increases, but 1 instance is still preferred. Lastly, they prefer to receive feedback about the outcomes and decision-making process for a project about greenery in comparison to a project about housing. The scale of the project has a minor effect on the preferences, as only the interaction between the scale and the channel was found to be significant. Although this group generally prefers to participate online, when the project is on a city scale, rather than on the neighborhood scale, they do not have a specific preference for online or offline participation.

4.3.3. Class membership and personal characteristics

When estimating the LC models, the probability for each respondent to belong to the 'Engaged citizens' or 'Passive citizens' class was also estimated. Based on these individual parameters, respondents were classified into the two classes, by assigning them to the class with the highest probability. It was examined whether there are relationships between the latent class membership and several personal characteristics using cross-tabulations with chi-square tests and independent t-tests.

Table 32 shows the relationships between the latent classes and the sociodemographic, psychological, political and social characteristics.

Table 31 - Relationship between sociodemographic, psychological and political characteristics and latent class membership

Characteristic	Engaged citizens	Passive citizens	Total	X^2 or t	Sign.
Age groups				9.056	**
16-20 years old	8.7%	14.3%	10.9%		
20-40 years old	39.5%	50.0%	43.6%		
40-65 years old	42.1%	31.0%	37.7%		
>65 years old	9.7%	4.8%	7.8%		
Gender				2.527	n.s.
Female	43.3%	52.4%	52.6%		
Male	56.7%	47.6%	46.4%		
Level of education				0.009	n.s.
Low	26.7%	26.2%	26.5%		
High	73.3%	73.8%	73.5%		
Ethnicity				1.099	n.s.
Not Dutch	7.7%	4.8%	6.6%		
Dutch	92.3%	95.2%	93.4%		
Length of residence				8.770	**
<5 years	19.5%	23.0%	20.9%		
5-20 years	30.3%	41.3%	34.6%		
20-30 years	15.9%	15.9%	15.9%		
>30 years	34.4%	19.8%	28.7%		
Introvert	1.49	1.87	1.64	-3.512	***
Extravert	2.96	2.55	2.80	4.470	***
Not open to change	1.50	1.75	1.60	-1.891	*
Open to change	2.66	2.52	2.60	1.282	n.s.
Political engagement				4.623	*
Not involved	33.3%	45.2%	38.0%		
Passively involved	51.8%	42.1%	48.0%		
Actively involved	14.9%	12.7%	14.0%		
Societal engagement				5.613	*
Not involved	11.3%	19.0%	14.3%		
Passively involved	17.9%	22.2%	19.6%		
Actively involved	70.8%	58.7%	66.0%		
External efficacy	1.71	1.80	1.74	-0.893	n.s.
Internal efficacy	2.87	2.43	2.70	4.401	***

*Note. *** p < 0.01, ** p < 0.05, * p < 0.1, n.s. = not significant.*

Table 32 shows a significant relationship between class membership and age. The 'Engaged citizens' are older in comparison to the 'Passive citizens'. 'Engaged citizens' have a higher percentage of 40-65 years old people, whereas 'Passive citizens' have a higher percentage of 25-40 years old people. In addition, the length of residence has a significant influence on class membership. The 'Engaged citizens' have lived longer (>30 years) in their municipality than the 'Passive citizens' (<20 years). There is no significant difference between the classes with regard to gender, level of education and ethnicity.

With regard to the psychological factors, it can be concluded that class membership is significantly associated with being an extravert and being an introvert. The 'Engaged citizens' are more extravert and less introvert than the 'Passive citizens'. Moreover, 'Passive citizens' are more likely not to be open to change in comparison to 'Engaged citizens'. Being open to change does not influence class membership.

It can be observed that the political and societal engagement of the classes are also distinct. The 'Engaged citizens' have a higher share of people that are actively involved in political and societal organizations than the 'Passive citizens'. The 'Passive citizens' are less politically and societally engaged.

Only one of the political factors was found to be significant, namely internal efficacy. People with a high internal efficacy are found among the 'Engaged citizens', 'Passive citizens' have a lower internal efficacy. External efficacy is not associated with class membership.

Table 33 gives an overview of the relationship between the participation factors and latent class membership.

Table 32 - Relationship between participation factors and latent class membership

Characteristic	Engaged citizens	Passive citizens	Total	X^2 or t	Sign.
Previous participation				9.309	**
No	54.4%	70.6%	60.7%		
Yes	39.0%	23.0%	32.7%		
Don't know	6.7%	6.3%	6.6%		
Motivations to participate					
Interested in urban planning				12.540	***
No	31.8%	51.6%	39.6%		
Yes	68.2%	48.4%	60.4%		
Personal development				10.166	***
No	75.4%	89.7%	81.0%		
Yes	24.6%	10.3%	19.0%		
Influence decisions				1.149	n.s.
No	29.2%	34.9%	31.5%		
Yes	70.8%	65.1%	68.5%		
Financial compensation				7.206	***
No	96.9%	89.7%	94.1%		
Yes	3.1%	10.3%	5.9%		
Affects own living environment				0.371	n.s.
No	96.4%	97.6%	96.9%		
Yes	3.6%	2.4%	3.1%		
Never want to participate				8.457	***
No	96.9%	88.9%	93.8%		
Yes	3.1%	11.1%	6.2%		

Characteristic	Engaged citizens	Passive citizens	Total	X^2 or t	Sign.
Motivations not to participate					
Not interested in urban planning				3.898	**
No	95.4%	89.7%	93.1%		
Yes	4.6%	10.3%	6.9%		
Not enough knowledge about urban planning				9.586	***
No	80.5%	65.1%	74.5%		
Yes	19.5%	34.9%	25.5%		
Don't want to/ too much effort				27.895	***
No	79.0%	50.8%	67.9%		
Yes	21.0%	49.2%	32.1%		
No time				0.783	n.s.
No	41.0%	46.0%	43.0%		
Yes	59.0%	54.0%	57.0%		
No trust in municipality/ participation process				2.121	n.s.
No	95.4%	98.4%	96.6%		
Yes	4.6%	1.6%	3.4%		
(The feeling) that nothing is done with input				1.487	n.s.
	94.9%	97.6%	96.0%		
No	5.1%	2.4%	4.0%		
Yes					
Channels for participation					
At the front door				0.255	n.s.
No	91.3%	92.9%	91.9%		
Yes	8.7%	7.1%	8.1%		
Personal network	`			0.050	n.s.
No	71.8%	70.6%	71.3%		
Yes	28.2%	29.4%	28.7%		
Letter				1.466	n.s.
No	41.5%	48.4%	44.2%		
Yes	58.5%	51.6%	55.8%		
Telephone				8.273	***
No	82.6%	93.7%	86.9%		
Yes	17.4%	6.3%	13.1%		
Mail				0.108	n.s.
No	29.2%	31.0%	29.9%		
Yes	70.8%	69.0%	70.1%		
Website				0.021	n.s.
No	78.5%	77.8%	78.2%		
Yes	21.55	22.2%	21.8%		
Municipal app				6.790	***
No	76.4%	88.1%	81.0%		
Yes	23.6%	11.9%	19.0%		
Social media				0.104	n.s.
No	69.7%	71.4%	70.4%		
Yes	30.3%	28.6%	29.6%		

*Note. *** p < 0.01, ** p < 0.05, * p < 0.1, n.s. = not significant.*

It can be seen that previous participation has a significant relationship with class membership. People that have participated before are found more often in the 'Engaged citizens' group. In addition, several motivations for participation are associated with class membership, namely 'being interested in urban planning', 'personal development', 'getting a financial compensation', 'never wanting to participate' and 'other motivations to participate'. The 'Engaged citizens' group has a higher percentage of people that would participate because they have an interest in urban planning or to develop themselves than the 'Passive citizens' class. 'Passive citizens' are more likely to participate to receive a financial compensation. In addition, this group exists of more respondents that never want to participate. This makes sense, since in the choice tasks the passive citizens more often choose not to participate if they would be invited in real life. Not surprisingly, the 'Passive citizens' group has a larger share of people that would not participate because they are not interested in urban planning, they don't know enough about urban planning or because they don't want to/think it takes too much effort in comparison to the 'Engaged citizens'. The results showed no significant differences between the latent classes regarding the motivations to participate to influence decisions or because it affects people's own living environment. Having no time to participate, having no trust in the municipality/ participation process or having the feeling that nothing is done with one's input are also not found to be associated with class membership. Lastly, two channels for participation were found to be significant. The 'Engaged citizens' have a higher percentage of respondents that want to be invited via the telephone (WhatsApp or call) or via the municipal app than the 'Passive citizens'.

4.3.4. Conclusion

This chapter discussed the results of descriptive statistics, the Multinomial Logit (MNL) models, the Latent Class (LC) models and the bivariate analyses. First of all, the personal data that was extracted from the online survey were explored using descriptive statistics. It could be concluded that the sample is not representative for the Dutch population. The sample has a higher share of highly educated, young and Dutch people in comparison with the distribution of the Dutch population. Moreover, the majority of respondents were extravert and open to change, only a minority was introvert and not open to change. In addition, the majority of respondents were engaged in political and/or societal organizations. Although respondents have a low external efficacy, they did have a high internal efficacy, indicating that although they do not feel enabled by the municipality to participate in urban developments, they do feel capable to participate. Most of the respondents have never participated in urban developments before. If they would participate, the majority would do this to influence decisions or because they are interested in urban planning. Not having the time to participate was the most selected reason not to participate. Respondents preferred to be invited via an e-mail or a letter.

Secondly, four different MNL models were estimated using the choice data, to discern the general preferences for participation. The model with the conditional choice and significant interaction effects was further elaborated, because this model contained the most information and had the highest model fit. It could be concluded that the level of involvement, frequency of involvement and time requirement of the participation process, collective or individual participation and the feedback that is given after the participation process all significantly affect the choice behavior. People prefer to give advice, participate individually, once and less than 15 minutes per instance. In addition, receiving feedback about the outcomes and the decision-making process was positively assessed and turned out to be the most important factor in choosing a participation process. Respondents were indifferent about the channel of participation. Moreover, the results showed that the scale of the project affected people's preferences to some extent. On a city scale, rather than the neighborhood scale, co-deciding is preferred and the preference for elaborate feedback decreases as well as the negative assessment of participating more than 60 minutes.

Thirdly, two classes could be identified in the LC model with distinct preferences for participation. The respondents in the first class, labelled the 'Engaged citizens', were more likely to choose one of the two participation processes, suggesting that they are more inclined to participate. In addition, the 'Engaged citizens' prefer to give advice, to participate 2-5 instances and less than 60 minutes and to receive feedback about the outcomes and decision-making process. Feedback was the most important attribute for this group. The context affected their preferences. When the project is about greenery, rather than housing, the 'Engaged citizens' prefer to participate collectively. Offline collective participation is preferred when the project is on a neighborhood scale in comparison to the city scale. The second class tended to choose the 'no preference' option and had a preference to participate once and less than 15 minutes. Therefore, they were referred to as the 'Passive citizens'. This group prefers to co-decide, to participate online and individually and to receive feedback about the outcomes after participating. The interaction effects showed that 'Passive citizens' prefer to receive feedback about the outcomes and the decision-making process when the project is about greenery instead of housing. In addition, their preference for individual participation is strengthened in this case. Besides, when the project is on the city scale, rather than the neighborhood scale, they are indifferent about the channel of participation.

Lastly, chi-square tests and independent samples t-tests were used to examine the relationship between personal characteristics and latent class memberships. The 'Engaged citizens' were characterized by having a larger share of extravert people, with a higher internal efficacy than the

'Passive citizens'. Moreover, they were older, more politically and societally active and had lived longer in their municipality. In addition, they had a higher percentage of people that would participate because they are interested in urban planning or to develop themselves. The 'Engaged citizens' also more often indicated that they want to be invited for participation via the telephone or municipal app than the 'Passive citizens'. On the other hand, the 'Passive citizens' had a larger share of people that would participate to receive a financial compensation or that would never participate. In comparison to the 'Engaged citizens' they were more likely not to participate because they are not interested in urban planning, they don't know enough about urban planning or because they don't want to/think it takes too much effort. Moreover, people that have never participated before were more often found among the 'Passive citizens'.

5. Discussion

In this chapter the findings from the statistical analyses are compared with the findings of previous studies. Several studies found that the design of participation processes affect citizens' willingness to participate (Christensen, 2020; Li et al., 2020; Thiel et al., 2017; Tscharn et al., 2015) and that there are distinct groups of citizens with specific preferences for civic participation (Bang, 2004; Barrett & Brunton-Smith, 2014; Hooghe et al., 2016; Hustinx et al., 2012; Li & Marsh, 2008). This is confirmed in this study as well. Several process characteristics were found to play a role in respondents' preferences for participation processes, namely the participation method, the intensity of participation and the feedback that is given after the participation process. In addition, the scale and the content of the project affected citizens' preferences. Lastly, two distinct types of participants could be distinguished, namely the 'Engaged citizens' and the 'Passive citizens'. The most important differences between the 'Engaged citizens' and the 'Passive citizens' is that the 'Engaged citizens' were more inclined to participate than the 'Passive citizens' and were also more willing to put in the effort to participate. With regard to the personal characteristics, it could be concluded that the 'Engaged citizens' had a higher percentage of older people and who have lived longer in their municipality than the 'Passive citizens'. Moreover, they were more extravert and open to change, had a higher internal efficacy and were more civically engaged. As expected, also in the context of urban planning different groups of citizens have different preferences for participation. First of all, the results regarding the preferences for the different process attributes are further elaborated, as well as the found effects of the context attributes. This is followed by a discussion of the different types of participants that could be identified.

5.1. Process and context attributes

First of all, the findings of this study showed that feedback was the most important aspect of participation processes, more important than the intensity of participation and the participation method. Hence, communication may actually be more important than the design of the process. From the literature review it was concluded that transparency within the process is an important factor when engaging citizens (Bryson et al., 2013; Tscharn et al., 2015), since a lack of communication may lower citizens' willingness to participate (Li et al., 2020b). Citizens want to see that their input is taken into account in the decision-making process (Janse & Konijnendijk, 2007; Tscharn et al., 2015). This is confirmed by the findings in the current study, as respondents preferred to receive feedback about the outcomes of the participation process, as well as how the municipality came to this decision. The 'Passive citizens' however, preferred to get feedback only about the outcomes, which suggests that for them it is important to be able to quickly see the results of their input. It should be noticed that feedback in this study referred to the promise of feedback at the beginning of the process, rather than the actual feedback that is given at the end of the process. Of course, it is best if initiators of participation processes also keep to their promise, since citizens may not join again if they do not feel that their input lead to concrete actions.

Secondly, several studies found that citizen participation should not be too time consuming, otherwise citizens are reluctant to participate (Brown et al., 2016; Christensen, 2020; Tscharn et al., 2015). The findings of the current study also demonstrated that respondents did not prefer to participate more than five times and for more than 60 minutes. They actually preferred to participate only once, which is in line with the research of Christensen (2020). Moreover, the participation process should preferrably take less than 15 minutes of their time. Especially for 'Passive citizens', participation should be incidental and short. 'Engaged citizens' are more willing to participate frequently, as they preferred to participate two to five times. However, they did not want to participate for more than an hour per instance. The results with regard to the intensity of participation show that citizens do not really want

to put in much effort to think along in urban planning. This raises the question to what extent they actually value the opportunity to participate.

Thirdly, previous studies had different results with regard to the preferred level of involvement. Christensen (2020) found that citizens prefer to give advice and do not want to have the decision-making power. On the other hand, Thiel et al. (2017) found that being informed was one of the main motivations for participation, rather than discussing their environment with others or suggesting ideas for change. The results of the current study indicated that in general respondents preferred to give advice, which is thus in line with Christensen (2020). This shows that higher levels of participation are not necessarily preferred by citizens, thus higher levels of involvement do not always have to be the main aim for participation, which was also argued by EPA (n.d.). Li, Feng, Timmermans, & Zhang (2020) found that personal characteristics influenced the preferences for the level of involvement. Citizens that were older and highly educated preferred a higher level of involvement. This was not observed in this study. Respondents that were older were more likely to belong to the 'Engaged citizens', who preferred to give advice, whereas 'Passive citizens', existing of a higher share of young respondents, preferred to co-decide. In addition, no significant effect was found for the level of education.

It is interesting that respondents that were less inclined to participate and who did not want to put in the effort did wish to have a lot of influence in the process if they would participate. This may be undesirable for initiators of participation processes, as without time for deliberation there is a risk of irrational decisions to be made (Radzik-Maruszak & Bátorová, 2015). On the other hand, the results show that by keeping participation processes incidental and short it may be possible to engage a bigger group, which can level out the negative aspect of dominance within participation processes (Irvin & Stansbury, 2004; Michels, 2011). This shows the ambiguous aspect of citizen participation. There may be a discrepancy between the preferences of citizens and the aim of the participation processes from the initiators' point of view.

Fourth, the results of this study showed that in general respondents were indifferent on whether participation took place online or offline. This is in contrast with the findings of Christensen (2020) that showed that face-to-face meetings were preferred over online meetings. Previous studies have indicated that online participation has the potential to attract a wider range of citizens (Klamert & Münster, 2017; Li et al., 2020; Roberts, 2004; Tscharn et al., 2015). Based on the results of this study it can also be assumed that in general digital participation may be a viable option within urban developments, as it is not negatively assessed by respondents. Especially for younger and less extravert citizens it is suitable, as the results showed that 'Passive citizens', who were less than 40 years old and had a higher share of introvert people than 'Engaged citizens', preferred to participate online. This is in line with Tscharn et al. (2015) who found that especially young people are likely to participate online, whereas senior citizens prefer personal contact.

Fifth, whether participation takes place in a group or individually was found to influence the preferences for participation in this study. Respondents generally preferred to participate individually, which could indicate that they want to remain anonymous. Moreover, individual participation may be preferred because it is easier to participate (e.g., it takes less time than a meeting) and/or to avoid discussions with dominant citizens (e.g., in case of introvert people). It could also relate to the general trend of the individualized society. However, no research has been done yet to support this. There are no prior studies that specifically examined citizens' preferences for collective or individual participation processes, but Tscharn et al. (2015) did find that senior citizens preferred personal contact, which could suggest that older citizens prefer collective participation. However, in this study the older 'Engaged citizens' had no specific preference for individual or collective participation, whereas the younger and less extravert 'Passive citizens' were in favor of individual participation.

Since the channel for participation, the level of involvement and collective or individual participation were all found to play a role in citizens' preferences for participation, it can be concluded that different participation methods may influence how citizens engage, which is in line with Christensen (2020), Li et al. (2020b), Thiel et al. (2017) and Li et al. (2020a). Since younger citizens prefer online, short and individual participation, this may suggest that for them participation should be anonymous and be possible at any time and place, making it easily accessible for them to engage. However, whether differences in preferences are really related to a difference in age or rather a generational gap is questionable. The younger generation may be more acquainted with digital technologies and the trend of individualization may also play a larger role among younger citizens. In addition, personality traits also affected the preferences, suggesting that online and individual methods may also be preferred, because it does not entail personal contact, which is more suitable for introvert people. The results showed that different groups of citizens have different preferences for the participation method, suggesting that giving citizens a choice by designing multi-channel participation process with varying tools may be the best way to engage a diverse group of citizens. When using different tools, it should be carefully considered how input can be retrieved equally (Lieven, Lüders, Kulus, & Thoneick, 2021).

Lastly, previous studies indicated that citizens are more willing to participate on a neighborhood level (Larson & Lach, 2008; Wang et al., 2021) and when they have a specific interest in the topic of the project (Leao & Izadpahani, 2016; Li et al., 2020; Thiel et al., 2017). In this study however, the topic and scale of the project did not influence citizens' choice to participate, since the interaction effect between the topic/scale and the no-choice option was not found to be significant. The results did show that the context of the participation process influenced the preferences for the design of the process to some extent. On a city scale, rather than the neighborhood scale, they preferred to co-decide instead of giving advice and their preference for elaborate feedback diminished. This is striking as it would be expected that on a neighborhood level people would like to have more influence in the process, since changes in their neighborhood directly affect them, whereas city projects may only have an indirect effect. In this study, the general preferences for participation were similar across the different topics, which is consistent with the findings of Christensen (2020). The context also affected the preferences of the two distinct groups. The preferences for participation of 'Engaged citizens' were mostly affected by the scale of the topic. On a city scale their preferences switched from offline to online participation and from giving advice to co-decide in comparison to the neighborhood scale. Yet again it is striking that they want more power on the city scale. When the project is about greenery, collective participation is favored over individual participation, which is vice versa for a project about housing. For 'Passive citizens', the topic played a larger role. Their preferences changed regarding the feedback that is given after the process. Moreover, in contrast with the 'Engaged citizens', their preference for individual participation was strengthened when the project is about greenery, rather than housing. Since greenery is part of public space and thus open for all, it would be expected that citizens would prefer to participate collectively when the project is about greenery. However, it could be that the 'Passive citizens' consider greenery as less important or controversial than housing and are therefore more reluctant to join a citizens' meeting.

5.2. Groups of citizens and personal characteristics

The two identified groups of citizens with distinct preferences for participation in urban planning as found in this study are comparable to a few of the types that were identified in the literature about civic participation.

Based on the personal characteristics of the 'Engaged citizens', this group seems to relate to the 'Expert citizens' as distinguished by Li & Marsh (2008). The 'Expert citizens' prefer traditional forms of political participation. Citizens that are part of this group are between 40 to 59 years old, are confident in their

political abilities (high internal efficacy) and are likely to be involved in a societal organization, which is similar to the 'Engaged citizens' in this study. The 'Engaged citizens' also share some similarities with the 'Everyday makers' (Li & Marsh, 2008), when looking at the motivation to participate. 'Everyday makers' want to participate for personal growth. The 'Engaged citizens' also had a higher percentage of respondents that want to participate to develop themselves, or because they are interested in urban planning.

The 'Passive citizens' seem alike with the 'Monitorial citizens', that were identified by Agger (2012) and Hustinx et al. (2012). The 'Monitorial citizens' are less engaged in civic life, because they are not interested or they prioritize other activities. In this study, the 'Passive citizens' were also less likely to join in a participation process. A large share of the respondents belonging to the group, indicated that they did not want to participate because they were not interested in urban planning or because they did not want to/it takes too much effort. Moreover, if they would participate, they prefer to participate online, individually, incidentally and short. This is in line with the findings of Agger (2012) and Hustinx et al. (2012), who found that the 'Monitorial citizens' prefer to participate sporadically, online and in more individualized forms. The 'Monitorial citizens' were likely to be female (Hustinx et al. 2012) and highly educated (Agger, 2012). This study did not find a significant relationship between gender and the level of education and class membership. The results did show that 'Passive citizens' were characterized by being younger than the 'Engaged citizens'. This is in contrast with Hustinx et al. (2012), who did not find a significant association with age.

Most of the studies examining the effect of personal characteristics on citizens' willingness to participate focused on political and/or societal engagement. Only some sociodemographic characteristics were included in the literature about participation in urban planning.

It was expected that age and the length of residence would play a role in the context of urban planning. Similar to Van den Berg et al. (2020) and Shan (2012) middle-aged people were most likely to be 'Engaged citizens', as well as citizens that lived longer in their municipality, which is in line with Fors et al. (2019). Although males were found to be more civically active (Barrett & Brunton-Smith, 2014), there was no evidence in the literature that gender played a role in urban planning (Larson & Lach, 2007; Li et al., 2020b; Van den Berg et al., 2020). This is confirmed in this study. The level of education was also not found to be significant, whereas it was expected that higher educated citizens were more likely to participate in urban planning (Shan, 2012; Li et al., 2020b). This may be due to the high percentage of highly educated people in the sample. In addition, ethnicity also did not seem to play a role, which is in contrast with the study of Barrett & Brunton-Smith (2014), Li & Marsh (2008) and Vicente & Novo (2014), who found that ethnic minorities were less politically engaged. Hence, ethnicity may play a smaller role in urban planning than in political participation. The insignificance of ethnicity could however also be explained due to the fact that only a very small percentage of the respondents was not Dutch.

Although the effects of psychological, political and social factors were not yet examined in literature about participation in urban planning, they were found to play a role in political and/or societal participation (Jennstål, 2016; Barrett & Brunton-Smith, 2014; Gastil & Xenos, 2010; Campbell, 2013; Gherghina & Geissel, 2017). The results of this study confirm that they also play a role in the context of urban planning. Similar to the findings of Jennstål (2016), the results showed that more extravert people who were more open to change were more likely to be 'Engaged citizens'. In addition, people with a higher internal efficacy belonged to the 'Engaged citizens', which is in line with Barrett & Brunton-Smith (2014) and Gastil & Xenos (2010). Contrary to the findings of these studies, external efficacy was not found to be associated with class membership. The 'Engaged citizens' had a higher share of people that

were politically and/or societally engaged, which is in line with Gherghina & Geissel (2017) and Campbell (2013).

From the personal characteristics of the classes it can be concluded that not only sociodemographic variables affected respondents' preferences, but also psychological, political and social factors played a role. To the best of this author's knowledge this was the first study to include all these factors into one study. The results show that sociodemographic characteristics may play a smaller role in urban planning than the other factors.

6. Conclusion

6.1. Conclusions

Citizen participation is a growing phenomenon in urban planning around the globe due to urban planning's complex nature. In the Netherlands, citizens have increased opportunities to influence the decision-making processes in urban planning since the 1970s. In October 2022 or January 2023 these opportunities are further stimulated by the introduction of the new Environmental and Planning Act, which obliges municipalities to engage citizens in urban planning at an early stage. The act does not state how participation processes should be designed, whereas the design of the process largely affects its effectiveness. In addition, it affects if and how citizens engage. Adjusting participation processes to the various preferences of citizens may increase their willingness to engage, ultimately resulting in more inclusive and representative processes that contribute to the legitimacy of the decisions that are made in urban planning projects. The aim of this study was to obtain more insights into citizens' preferences for participation processes in urban planning and which process attributes influence these preferences. Moreover, the study aimed to examine whether different types of participants could be identified that are characterized by certain personal characteristics. This resulted in the main research question: *"How can effective participatory processes in urban development be set up that align with the preferences of different groups of citizens, with the aim to increase the willingness of citizens to participate, thereby increasing the chance of inclusive and representative participation processes?"* To answer this question, an extensive literature study was carried out and a stated choice experiment was executed.

Prior research found that several process characteristics may affect citizens' preference for participation, as well as the context of the project. Several process attributes were included in the stated choice experiment, namely the channel for participation, the level of involvement, collective or individual participation, the frequency of involvement, the time requirement and the feedback that is provided after the process. In addition, the context varied between respondents, allowing to examine whether the content and scale of the project affected respondents' preferences. Moreover, different types of civic participants could be identified in the literature. If and how people participate depended on sociodemographic, political, social and psychological factors. Therefore, these were included as additional questions in the survey.

The results of this study showed that in general feedback was the most important attribute for respondents and they preferred to receive feedback about the outcome and the decision-making process. This was followed by the intensity of participation. Respondents preferred to participate individually, incidentally and for less than fifteen minutes. Moreover, they would like to give advice rather than having the power to make decisions. The results also showed that preferences differ between citizens. Two distinct types of participants could be identified, namely the 'Engaged citizens' and 'Passive citizens'. The 'Engaged citizens' were more likely to choose one of the participation processes, whereas the 'Passive citizens' were more likely not to participate if they were invited in real life. The preferences for participation differed between the two groups. The 'Engaged citizens' preferred to give advice, participate two to five times and for less than 60 minutes. After the process, they prefer to receive feedback about the outcomes and the decision-making process. The 'Engaged citizens' wanted to participate because they are interested in urban planning or to develop themselves. They were characterized by being middle-aged, extravert, civically engaged, they had lived longer in their municipality, and they have a high internal efficacy. On the other hand, the 'Passive citizens' choose not to participate, because they do not have enough knowledge about urban planning or because they think participation costs too much effort. If they participate, they prefer to participate once, less than 15 minutes, individually and online. In addition, they prefer to co-decide and after the process they want to receive feedback about the outcomes. The 'Passive citizens' were characterized

by being young. Moreover, they were less extravert, had a lower internal efficacy and had lived shorter in their municipality than the 'Engaged citizens'. Lastly, the context of the project played a role in the general preferences and the specific preferences of the groups. If the project involved the city, rather than the neighborhood, respondents' preferences switched from giving advice to co-decide. Moreover, their preference for elaborate feedback and their negative assessment of long processes decreased. The preferences of 'Engaged citizens' were mostly affected by the scale of the project. If the project was on a city scale, they had a significant preference for online participation and their preference regarding the level of involvement switched from giving advice to co-decide in comparison to the neighborhood scale. Moreover, their preference of individual participation was strengthened. The topic of the project mostly affected the preferences of the 'Passive citizens'. If the project was about greenery, rather than housing, they preferred to receive elaborate feedback instead of only feedback about the outcomes and their preference for individual participation was strengthened.

It can thus be concluded that to enhance the engagement of a diverse group of citizens, processes should not be too time consuming, and the feedback given after the process should be elaborate. Participation processes should give the opportunity to give advice individually (for instance via surveys). Moreover, to attract citizens that are less likely to participate, participation processes should be incidental, short, individual and online. Since different types of citizens could be identified with different preferences for participation, it may be best to give citizens a choice how to engage, by giving different opportunities through multi-channel participation processes with varying tools. However, careful attention should be paid to how information can be retrieved equally. Besides, the participation process should be adjusted according to the context of the urban planning project. Although this study specifically focused on the design of participation processes, the management of such processes should not be neglected in ensuring their effectiveness.

6.2. Practical implications

This research provided insights into citizens' preferences for citizen participation in urban development. The results may be translated into specific design guidelines for participation processes, which can be used by municipalities and other initiators of urban developments, such as project developers. This study may be used as a starting point for creating a municipal participation policy, which may help to put the new Environmental and Planning act in practice. It is expected that by designing participation processes in line with the preferences of citizens, they will be more willing to engage. In Appendix K: Infographic with main implications for municipalities (NL), an infographic including the most important guidelines is presented.

Based on the findings, the following advice can be given to municipalities. First of all, promise and provide feedback, acknowledge citizens' competence and translate citizens' input into concrete action. Secondly, incidentally invite citizens to participate via a letter or e-mail and keep participation short; preferably less than 15 minutes. Thirdly, approach different types of citizens differently and/or offer different ways to participate, so citizens can choose what suits them best. Online participation has the potential to attract citizens that are less inclined to participate. Individual methods (e.g., information material, surveys or referenda) may be more suitable for introvert people and people that have less faith in their capability to participate. Moreover, online, short and individual participation seems to work best for younger citizens, so the threshold for participation is as low as possible. Young people could for example participate via an online poll on social media, so they can share their opinion within an instance. Middle-aged citizens are more willing to put in the effort to participate. They prefer to give advice, but this can be online or offline in a group (e.g., via a workshop or discussion group) or individually (e.g., via a survey). Only when the project is about their neighborhood or about greenery, (offline) collective participation is specifically preferred. Hence, the design should be adjusted to the

scale and topic of the project as well. On a city scale, individual online participation is the most suitable for all citizens, whereas on the neighborhood scale collective offline participation can also work for older citizens or people that have resided longer in the neighborhood. In general, a multichannel approach with individual and collective tools may work best. Lastly, carefully manage the process. Define the goal of the participation process and the boundaries of the project (and thus the role of the citizens) beforehand and choose the participation method accordingly. Choose convenient time and places and provide language translation, childcare, transportation assistance or financial compensation if necessary, to lower the barrier for certain citizens. Communicate the goal and boundaries of the process and citizens' role/power at the beginning of the process and set participation rules. Give participants' opinions equal weights during the process. Establish policies, raise awareness and support for the participation process and secure the necessary (financial) means to translate participants' input into concrete results.

It should be noted that there may be discrepancies between citizens' preferences for participation and the aim of the participation processes from the initiators' point of view. When municipalities want to enhance direct participation processes, they should carefully consider that most citizens may not want this direct influence, as suggested by the results of this study. Moreover, if citizens get decision-making power, but only want to put limited effort into participation, there is a risk of irrational decision-making without deliberation. To actually increase the quality of urban planning processes, deliberation may be key, which takes time, but this is not desired by most citizens. Longer more deliberative processes may result in a small group of participants that are more extravert and have more confidence in their ability to influence decisions. Hence, stimulating the unrepresentativeness of participation processes. This therefore raises the question whether municipalities should actually aim for more direct participation, or maybe it is enough that citizens think along, but let the professionals and/or representatives take the decisions. It may be best to give many citizens the opportunity to easily give advice, rather than giving them decision-making power, to clarify their power before they participate as well as to promise them that their input will be considered and to demonstrate during and/or after the process how this is actually done.

6.3. Limitations of the study and recommendations for further research

Despite the fact that this study was carried out carefully and has yielded interesting results, some limitations can be identified. In this section, the methodology is evaluated and some recommendations for further research are made.

First of all, one of the main limitations of this study is the representativeness of the sample. The sample is biased in the sense that it includes a high percentage of respondents that are higher educated. The higher educated sample may have affected the results, since the results showed that in general surveys were the most preferred method. It is quite common that higher educated citizens/more resourceful citizens are more likely to fill out surveys than the lower educated/citizens with a lower social position (Te Riele, 2004). In this case, this bias may also be enhanced due to the personal network of the researcher via which the survey was spread and due to the complexity and length of the survey. Therefore, surveys should be carefully designed, considering the length of the survey, the complexity of the choice tasks and/or questions and the use of difficult words. Moreover, surveys may not be the best method to engage minorities. Qualitative methods may be more suitable, as they are easier to understand. Especially with the aim of making participation processes more inclusive and representative, the use and design of surveys should be carefully considered as it can lead to exclusion of lower educated citizens and minorities. This also raises the question whether participation processes should aim to be equally accessible for all or if there is a need for additional effort to also reach minorities. For further research regarding the inclusivity and representativeness of participation

processes it is recommended to use a mix of quantitative and qualitative measures, to reach a large number of participants and to be able to reach minorities.

Secondly, the stated preferences for participation processes in a hypothetical situation were studied using a Stated Choice Experiment (SCE). Although the SCE did allow to examine the trade-offs that citizens make when choosing a participation process, the obtained results from the SCE show an ideal process that may be unrealistic in real life, since there could be more barriers to participation and the design of the processes may be much more complex. When using a Revealed Preference (RP) method which studies the choice behavior in real life, different results could be obtained, as such unobserved effects would then be included. Moreover, SC data may be less reliable than RP data. SC data are reliable as long as the respondents understand the tasks, are committed to it and can respond to it (Adamowicz & Louviere, 1998; Kemperman, 2000). However, some respondents commented that they found the choice tasks difficult. Additionally, the complexity of the choice tasks was also one of the reasons that people did not fully fill in the survey. Therefore, it is questionable whether all respondents understood the SCE well enough to retrieve reliable results. As mentioned before, this may specifically be an issue in reaching citizens with a lower education level who in general are more likely to experience a survey as complex. This thus questions the suitability of an SCE for this target group. The SCE can be simplified by reducing the number of choice tasks or reducing the number of attributes. On the other hand, Hensher, Rose, & Greene (2015a) suggest that SCE's should aim to capture all information that individuals consider when making a choice. Thus, a certain trade-off is necessary. In this study, a selection of attributes was already made to keep the SCE comprehensible. Therefore, there may be excluded attributes that play a more prominent role in citizens' evaluation of participatory processes in urban planning. For instance, the outreach before the process and the level of communication and information sharing during the process were also found to affect citizens' willingness to participate (Brown et al., 2016; Janse & Konijnendijk, 2007; Schlozman et al., 2018; Li et al., 2020b). Further research could examine how citizens can best be reached (focus on communication before the process) and how information can best be shared during and/or after the process.

Thirdly, the experimental design of the SCE only included the main effects, interaction effects between the process attributes were not taken into account. Therefore, there may be confounding effects in the results (Hensher, Rose, & Greene, 2015g). For instance, there could be a combined effect of the frequency of involvement and the time requirement on the preferences for participation. Hence, if this study were to be conducted again, it is suggested to also include interaction effects to maximize the captured information and give more valid predictions. Moreover, it was chosen to examine the effect of context attributes on citizens' preferences and identify differences between respondents. However, it may also be interesting to examine within-person variability with regard to the context of the participation process to see if individuals' preferences for participation processes vary for different development projects. Further research could include varying context attributes within each choice task in a nested context-dependent experimental design.

Fourth, in this study it is assumed that if participation processes are aligned with citizens' preferences for participation, they are more willing to participate. However, it has not been checked whether participation actually increases if this would be done. Hence, an additional experiment could be conducted with one group that participates in a participation process designed as stated in municipalities' policy (control group) and one group that participates in a participation process that is adapted to the found results in this study, to check this assumption.

Fifth, the results of this study indicated that online participation methods have the potential to attract certain groups of citizens. There was no preference found for face-to-face contacts. It should be noted that these results may have been affected by COVID-19, since citizens have become more acquainted

with digital tools and may have been more reluctant to have face-to-face contacts due to a fear for an infection. COVID-19 has accelerated online citizen participation, which was positively experiences and can be seen as a chance to reach more citizens (Hoorn, 2020; Citisens, n.d.). In addition, the findings showed that different types of citizens preferred different participation methods, hence a multi-channel approach with varying tools may be best to engage a diverse group of citizens. However, it may be difficult to retrieve equal information from different platforms and tools. How to integrate conventional and digital tools into urban planning projects needs to be further studied.

It could also be concluded that there may be a discrepancy between citizens' preferences and the preferences and/or goals of the initiators of participation processes. Although the perspective of municipalities has already been studied before, further research could focus on how to reduce the gap between the two parties. Moreover, the results showed that younger citizens had different preferences than older citizens, yet it remains unknown whether this difference is actually related to age or rather to differences between generations and general trends (e.g., the digital age and individualization). It would be interesting to conduct a similar longitudinal study to gain more insight into generational effects.

Lastly, it is recommended to repeat this study for different macro contexts, since the institutional context differs between countries and therefore affects citizens' perception of direct participation processes in policy-making (Barrett & Brunton-Smith, 2014). In addition, the way in which citizen participation processes in urban planning are designed also differs between countries (Li et al., 2020b).

Although additional research is necessary to gain further insight into citizen participation in urban planning, this study gave new insights into which design features of participatory processes are valued by citizens in urban planning. This is done on a more detailed level than previous studies that have examined preferences for participation in governmental policymaking (Christensen, 2020), focused on online participation in urban planning (Ertiö, Ruoppila, & Thiel, 2016; Li et al., 2020; Thiel et al., 2017; Tscharn et al., 2015) or evaluated a specific case of participation in urban planning (Brown et al., 2016; Janse & Konijnendijk, 2007; Larson & Lach, 2008). Moreover, to the best of this author's knowledge this was one of the first studies that identified different types of citizens with different preferences for participating in urban planning. It can be concluded that participation processes should focus on providing elaborate feedback and being incidental and short. The most preferred participation method would be surveys, so citizens can individually advise the initiators of the process. By providing online opportunities it may be possible to increase the diversity of the participants. In addition, diversity can be increased by approaching different types of citizens differently and/or provide different ways to participate, so citizens can choose what suits them best. The study adds to the understanding of how citizens can better be involved in urban planning processes, which can increase the effectiveness of the decision-making process, the creation of innovative plans of a higher quality and the societal support for plans.

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Appendices

Appendix A: Example of the choice task

*Choice 1/8

Characteristics	Participation process 1	Participation process 2
Participation channel	 Online	 Online
Participation method	 Informational meeting (be informed in a group)	 Survey or poll (give advice individually)
Frequency of involvement	 >5 instances	 2-5 instances
Time requirement	 >60 min.	 <15 min.
Feedback	 Feedback about outcomes	 Feedback about outcomes

Which participation process would you prefer?

Choose one of the following answers

Participation process 1

Participation process 2

*If you would be invited to participate in the chosen process, would you actually participate?

Yes

No

Appendix B: Form of approval

Ms. Romee den Boer

j.m.d.boer@student.tue.nl

TU/e
EINDHOVEN UNIVERSITY OF TECHNOLOGY

Date
September 23, 2021

Reference
ERB2021BE42

Ethical Review Board TU/e

T +31 (0)40 247 6259
ethics@tue.nl

intranet.tue.nl/ethics

Ethical review research proposal

Dear Ms. den Boer,

It is a pleasure to inform you that the Ethical Review Board (ERB) has discussed and approved your application "Citizens' preferences for citizen participation in urban developments".

The Board wants to draw your attention to the terms and conditions in the appendix.

Success with your research!

Sincerely,

Dr. D. Lakens
Chair Ethical Review Board TU/e

Enclosures
1

The ERB retains the right to revise its decision regarding the implementation and the WMO[1]/WMH[2] status of any research study in response to changing regulations, research activities, or other unforeseen circumstances that are relevant to reviewing any such study. The ERB shall notify the principal researcher of its revised decision and of the reasons for having revised its decision.

[1]WMO: Law on Medical Scientific Research involving Human Beings (in Dutch: Wet medisch-wetenschappelijk onderzoek met mensen)

[2]WMH: Medical Device Directive (in Dutch: Wet op de medische hulpmiddelen)

Date
September 23, 2021

TU/e

APPENDIX 1

Terms and conditions

Amendments
When considerable amendments are made to the design of the study or educational activity, or when the time period between ERB approval and start of the study is longer than one year, please consult the ERB.

Privacy and research data management
The ERB would like to point out that collecting, handling and storing personal information is subject to the General Data Protection Regulation. Please visit TU/e intranet for the latest information and regulations on www.tue.nl/rdm

Appendix C: Survey

Citizen participation in urban developments

This questionnaire is part of a master thesis research at the Eindhoven University of Technology about the preferences for citizen participation in urban developments. The results of the questionnaire will be used by some municipalities to improve cooperation with their citizens.

If, for example, the public square in your neighbourhood is being renovated, it is important that your thoughts and ideas are also included when making plans. We call this "participation" (see video below). Through this questionnaire I would like to hear how you prefer to be involved, so your voice can be better heard in the future!

Completing the questionnaire takes about 15 minutes. You will first perform a choice task and afterwards questions about you as a person will follow. There are no right or wrong answers and you can stop the questionnaire at any time.

Your answers to the questions and any other information you may provide will be treated confidentially and processed **anonymously**. The results will be made public and will be used for my graduation project at the Eindhoven University of Technology.

Participation in this research is entirely voluntary. Your written consent is required to participate. Please read the above information and the **information sheet** carefully before giving your consent on the next page.

If you have any questions, please email me at j.m.d.boer@student.tue.nl.

Thank you very much in advance for participating in my research!

Best regards,

Romee den Boer

In scientific research it is mandatory to inform participants that participation is voluntary. In addition, participants must give their consent for their data to be processed. After reading the information below, you can give this consent.

*Do you agree with the statement below?

Choose one of the following answers

- (●) Yes, I consent and I am happy to participate in the study.
- ( ) No, I would like to stop participating in the study.

Consent to participate in the study

- I am over the age of 16.
- I have read and understood the information. I have been adequately informed about the study through a separate **information sheet**. I have read and understood the information sheet and have had the opportunity to ask questions. Any questions have been adequately answered.
- I voluntarily consent to participate in this study; there is no explicit or implicit coercion for me to participate in this study. I understand that I may choose not to answer questions. It is also clear to me that I may terminate participation in the study at any time, without giving a reason.

Consent to process personal data

- I consent to the processing of the data and information I provide during the study for scientific research and publication as described in the attached information sheet. This data will be processed confidentially.

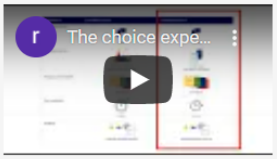
*Do you give permission for using the anonymized information you provided in future follow-up research or for educational purposes?

Choose one of the following answers

- ( ) Yes.
- ( ) No.

Regardless of the answer you give above, you can still participate in the study.

In the following 8 questions you will see two ways of participation. Each time we will ask you about your preference. This is called a "choice experiment" (see video below). You can read more about the choice experiment on this page.



The different ways of participation differ in whether it takes place online or offline, in which way you are involved, how often you are involved, how long you are involved per instance and which information you receive after participation.

Tip: You can click on the words in the table or watch the videos below for an explanation of the characteristics.

Characteristic	Different levels		
Participation channel	Online	Offline	
Participation method	Information meeting (being informed in a group)	Information material (being informed individually)	
	Group discussion, brainstorm or workshop (give advice in a group)	Survey or poll (give advice individually)	
	Citizen jury (co-decide in a group)	Referendum (co-decide individually)	
Frequency of involvement	1 instance	2 to 5 instances	More than 5 instances
Time requirement per instance	Less than 15 minutes	15 to 60 minutes	More than 60 minutes
Feedback	No feedback	Feedback about the outcomes	Feedback about the outcomes and the decision-making process

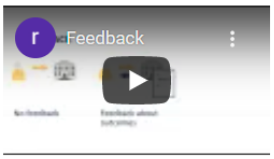
The municipality can ask for a quick response, but participation can also take more time. Time requirement has to do with the length of your involvement per instance.

Participation channel

Participation method

Frequency of involvement and time requirement per instance

Feedback



Your municipality is making plans for the **housing** in your **neighbourhood** and wants to involve you.

The following 8 questions each describe two ways in which you could be involved voluntarily and without compensation. Please indicate which variant you prefer.

*Choice 1/8

Characteristics	Participation process 1	Participation process 2
Participation channel	 Online	 Online
Participation method	 Informational meeting (be informed in a group)	 Survey or poll (give advice individually)
Frequency of involvement	 >5 instances	 2-5 instances
Time requirement	 >60 min.	 <15 min.
Feedback	 Feedback about outcomes	 Feedback about outcomes

Which participation process would you prefer?

Choose one of the following answers

Participation process 1

Participation process 2

*If you would be invited to participate in the chosen process, would you actually participate?

Yes | No

This was the end of the choice experiment. The next part of the questionnaire contains questions about you as a person.

*What is your age?

*What is your gender?

Choose one of the following answers

- Male
- Female
- Other

*What is the highest level of education that you have completed?

Choose one of the following answers

- Primary school
- Secondary school
- Vocational education
- Bachelor's degree (university of applied sciences/university)
- Master's degree or doctorate
- Other:

*To which of the following ethnicities do you consider yourself to belong?

Check all that apply

- [ ] Dutch
- [ ] Turkish
- [ ] Moroccan
- [ ] Surinamese
- [ ] Indonesian
- [ ] German
- [ ] Polish
- [ ] Other:

*In which municipality do you live?

- ○ Den Bosch
- ○ Eindhoven
- ○ Nijmegen
- ○ Tilburg
- ○ Veldhoven
- ○ Other:

*How long have you resided in your municipality (in years and months; if necessary round up)?

years

months

*Please indicate to what extent you agree with the following statements about your personality.

I see myself as someone who...

	Strongly agree	Agree	Neither agree, nor disagree	Disagree	Strongly disagree
... is reserved.	○	○	○	○	○
... is outgoing, sociable.	○	○	○	○	○
... has few artistic interests.	○	○	○	○	○
... has an active imagination.	○	○	○	○	○

*Below a few organizations are listed in which you can be voluntarily involved. You can for instance be a member, donate money, join an activity or volunteer.

Please indicate per organization which of the following statements apply for you at the moment, or in the past 12 months.

1 = I am actively involved (e.g. joining an activity or volunteering).

2 = I am passively involved (e.g. donating money; not active, but a member).

3 = I am not involved.

	Actively involved	Passively involved	Not involved
Political party	○	○	○
Migrant-, refugee-, or human rights organization	○	○	○
Animal rights-, or nature- and environmental organization	○	○	○
Labor union, employee or employer organization	○	○	○
Cultural-, sports- or hobby association	○	○	○
Study- or student association	○	○	○
Neighborhood association	○	○	○
Religious organization	○	○	○
Science-, education-, teachers or parents' association	○	○	○
Organization for neighbors, elderly or disabled assistance	○	○	○
Other organization	○	○	○

*Below a few statements about **participation** in **urban development** are stated.

To what extent do you agree with the statements?

	Strongly agree	Agree	Neither agree, nor disagree	Disagree	Strongly disagree
The municipality fully enables people like me to be involved in what the municipality does through participation.	○	○	○	○	○
I am fully capable of taking an active role in participation in urban developments.	○	○	○	○	○
The municipality fully enables people like me to have an influence on urban developments.	○	○	○	○	○
I am fully confident in my own ability to be involved in participation in urban developments.	○	○	○	○	○

*Have you ever joined in a **participation process** regarding **urban developments** before?

Choose one of the following answers

- ○ Yes
- ○ No
- ○ Don't know

*What could be a reason for you to join a participation process regarding urban developments?

Check all that apply

- ☐ I am interested in urban planning
- ☐ I want to develop myself
- ☐ I want to influence decisions
- ☐ I want to participate because a financial compensation will be given
- ☐ I never want to participate
- ☐ Other:

*What could be a reason for you **not** to join a participation process regarding urban developments?

Check all that apply

- ☐ I am not interested in urban planning
- ☐ I don't know much about urban planning
- ☐ I don't want to participate/participating takes too much effort
- ☐ I don't have time to participate
- ☐ Other:

*Suppose that you want to join a participation process, how would you like to be approached by the municipality?

Check all that apply

- [ ] At the front door
- [ ] Personal network (e.g. asked via colleagues, friends, neighbors or acquaintances)
- [ ] Letter
- [ ] Telephone (via a call, text or WhatsApp)
- [ ] E-mail
- [ ] Website
- [ ] Municipal app
- [ ] Social media
- [ ] Other:

Do you have any further comments on the survey?

Would you like to receive the final results of this study?

Yes | No

What is your e-mail address?

Thanks for completing this survey. We are still looking for respondents, so please feel free to share the link to the survey with anyone you know!

Link to survey: https://tueindhoven.limequery.com/259821?lang=en

Appendix D: Python code

Python code for transformation conditional choice data

```
import pandas as pd
import numpy as np
import csv
import os

print('basename:    ', os.path.basename(__file__))
print('dirname:     ', os.path.dirname(__file__))

# Read csv files, data and profile information
    df = pd.read_csv('Dataset1_Cleaned_withoutcomments.csv', sep=';')
    df_head = df.head()
    info = pd.read_csv('info.csv', sep=';')
    info_context = pd.read_csv('info_context.csv', sep=';')

    #Array of headers for profile information
    info_headers = ['Chan', 'LoI1', 'LoI2', 'ColInd', 'FoI1', 'FoI2', 'TR1', 'TR2', 'FB1', 'FB2']
    info_context_headers = ['Topic', 'Scale']

    #All posible profile sets in correct order
    sets = [
        [11, 5, 7, 4, 2, 10, 13, 6, 16, 9, 12, 8, 3, 15, 14, 1],
        [13, 12, 15, 8, 6, 1, 3, 11, 9, 10, 2, 14, 16, 7, 4, 5],
        [5, 16, 2, 15, 3, 9, 13, 4, 12, 1, 11, 6, 14, 10, 8, 7],
        [2, 11, 8, 4, 3, 14, 13, 16, 15, 1, 7, 12, 9, 5, 6, 10],
        [6, 1, 13, 2, 5, 10, 7, 14, 3, 11, 9, 8, 16, 15, 12, 4]
    ]

    #Create new csv file with transformed data
    with open('dataset_transformed_v2_interactions.csv', 'w', newline='') as f:
        #Write the header of the new csv file
        headers = ['resp', 'id', 'context', 'set', 'task','prof', 'choice', 'Chan', 'LoI1', 'LoI2', 'ColInd', 'FoI1', 'FoI2', 'TR1', 'TR2', 'FB1', 'FB2', 'Chan_top', 'Chan_sca', 'LoI1_top', 'LoI1_sca', 'LoI2_top', 'LoI2_sca', 'ColInd_top', 'ColInd_sca', 'FoI1_top', 'FoI1_sca', 'FoI2_top', 'FoI2_sca', 'TR1_top', 'TR1_sca', 'TR2_top', 'TR2_sca', 'FB1_top', 'FB1_sca', 'FB2_top', 'FB2_sca']
```

```
32.         writer = csv.writer(f)
33.         writer.writerow(headers)
34.
35.         #For every row in the dataset
36.         for i, row in df.iterrows():
37.             #Set the index equal to the index of the row plus
    1
38.             index = i + 1
39.
40.             #ID and Set are equal to original dataset
41.             id = row['id']
42.             context = int(row['Context'])
43.             set = int(row['Set'])
44.
45.             #Begin every respondent with task one
46.             task = 1
47.
48.             #Check for the lenght of the set array
49.             for j in range(len(sets[set-1])):
50.                 #Get the name of the column in the original
    dataset and determine the choice made by the respondent
51.                 name = f"SCE{set}{task}1"
52.                 choice = row[name]
53.                 choice = choice.split()
54.                 choice = int(choice[-1])
55.
56.                 #Transform the choice to either 0 or 1
57.                 if j % 2 == 0 and choice == 1:
58.                     choice = 1
59.                 elif j % 2 != 0 and choice == 1:
60.                     choice = 0
61.                 elif j % 2 == 0 and choice == 2:
62.                     choice = 0
63.                 elif j % 2 != 0 and choice == 2:
64.                     choice = 1
65.
66.                 #If the index of the profile is uneven
67.                 if j % 2 != 0:
68.                     #Get the profile from the set array
69.                     prof = sets[set-1][j]
70.                     #Set the initial data
71.                     data = [index, id, context, set, task,
    prof, choice]
72.                     data_interaction = []
73.                     #Add the profile information from the
    profile info array
74.                     for header in info_headers:
75.                         var1 = info.iloc[prof-1][header]
```

```
                        data.append(var1)
                        for header in info_context_headers:
                            var2 = info_context.iloc[context-1][header]
                            interaction = var1 * var2
                        data_interaction.append(interaction)
                        #Write the row to the new csv file
                        total = np.concatenate((data, data_interaction))
                        writer.writerow(total)
                        #Continue to the next task
                        task += 1
                        continue
                    #If theindex of the profile is even
                    else:
                        #Get the profile from the set array
                        prof = sets[set-1][j]
                        #Set the initial data
                        data = [index, id, context, set, task, prof, choice]
                        data_interaction = []
                        #Add the profile information from the profile info array
                        for header in info_headers:
                            var1 = info.iloc[prof-1][header]
                            data.append(var1)
                            for header in info_context_headers:
                                var2 = info_context.iloc[context-1][header]
                                interaction = var1 * var2
                        data_interaction.append(interaction)
                        #Write the row to the new csv file
                        total = np.concatenate((data, data_interaction))
                        writer.writerow(total)
                        #DO NOT CONTINUE TO NEW TASK, REMAIN AT CURRENT TASK (SEE INDEX OF SET ARRAYS)
```

Python code for transformation unconditional choice data

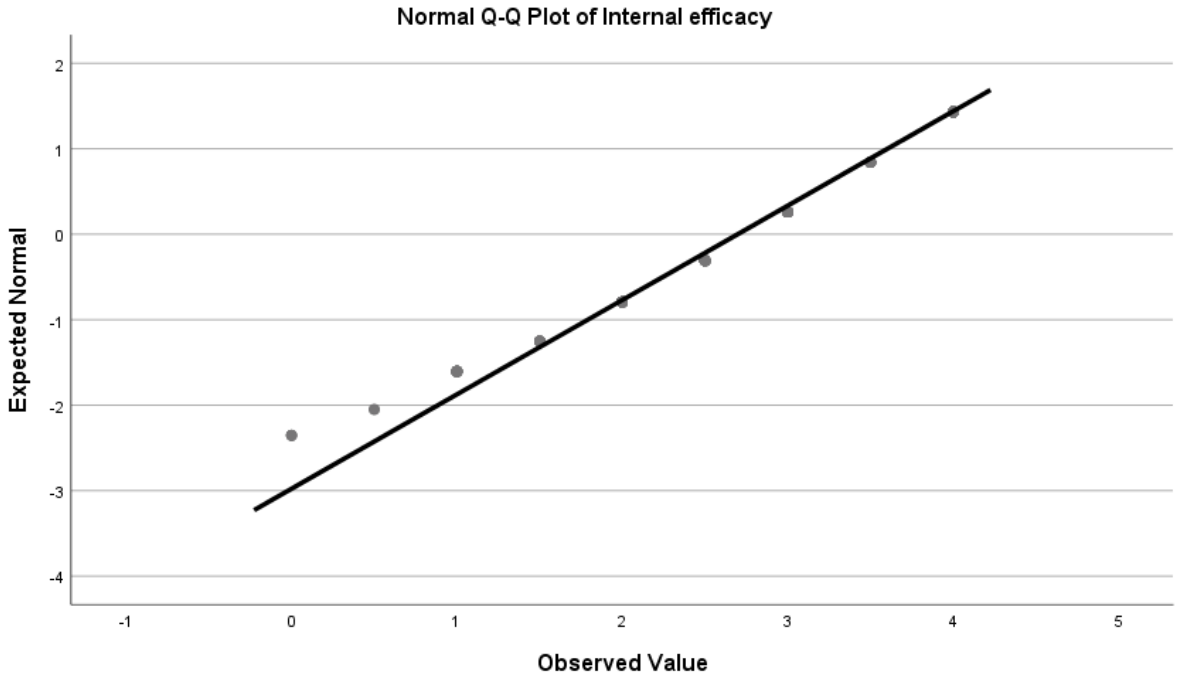
```
import pandas as pd
import numpy as np
import csv

# Read csv files, data and profile information
df      =      pd.read_csv('Dataset1_Cleaned_withoutcomments.csv', sep=';')
df_head = df.head()
info = pd.read_csv('info.csv', sep=';')
info_context = pd.read_csv('info_context.csv', sep=';')

    #Array of headers for profile information
    info_headers = ['Chan', 'LoI1', 'LoI2', 'ColInd', 'FoI1', 'FoI2', 'TR1', 'TR2', 'FB1', 'FB2']
    info_context_headers = ['Topic', 'Scale']

    #All posible profile sets in correct order
    sets = [
        [11, 5, 7, 4, 2, 10, 13, 6, 16, 9, 12, 8, 3, 15, 14, 1],
        [13, 12, 15, 8, 6, 1, 3, 11, 9, 10, 2, 14, 16, 7, 4, 5],
        [5, 16, 2, 15, 3, 9, 13, 4, 12, 1, 11, 6, 14, 10, 8, 7],
        [2, 11, 8, 4, 3, 14, 13, 16, 15, 1, 7, 12, 9, 5, 6, 10],
        [6, 1, 13, 2, 5, 10, 7, 14, 3, 11, 9, 8, 16, 15, 12, 4]
    ]

    null_data = [0, 0, 0, 0, 0, 0, 0, 0, 0 , 0]

    #Create new csv file with transformed data
    with  open('dataset_transformed_null_context2.csv',  'w', newline='') as f:
        #Write the header of the new csv file
        headers    =    ['resp',    'id',    'context',    'set', 'task','prof',  'choice',  'const',  'topic',  'scale',  'Chan', 'LoI1', 'LoI2', 'ColInd', 'FoI1', 'FoI2', 'TR1', 'TR2', 'FB1', 'FB2',    'Chan_top',    'Chan_sca',    'LoI1_top',    'LoI1_sca', 'LoI2_top', 'LoI2_sca', 'ColInd_top', 'ColInd_sca', 'FoI1_top', 'FoI1_sca',   'FoI2_top',   'FoI2_sca',   'TR1_top',   'TR1_sca', 'TR2_top',    'TR2_sca',    'FB1_top',    'FB1_sca',    'FB2_top', 'FB2_sca', 'Con_top', 'Con_sca']
        writer = csv.writer(f)
        writer.writerow(headers)
```

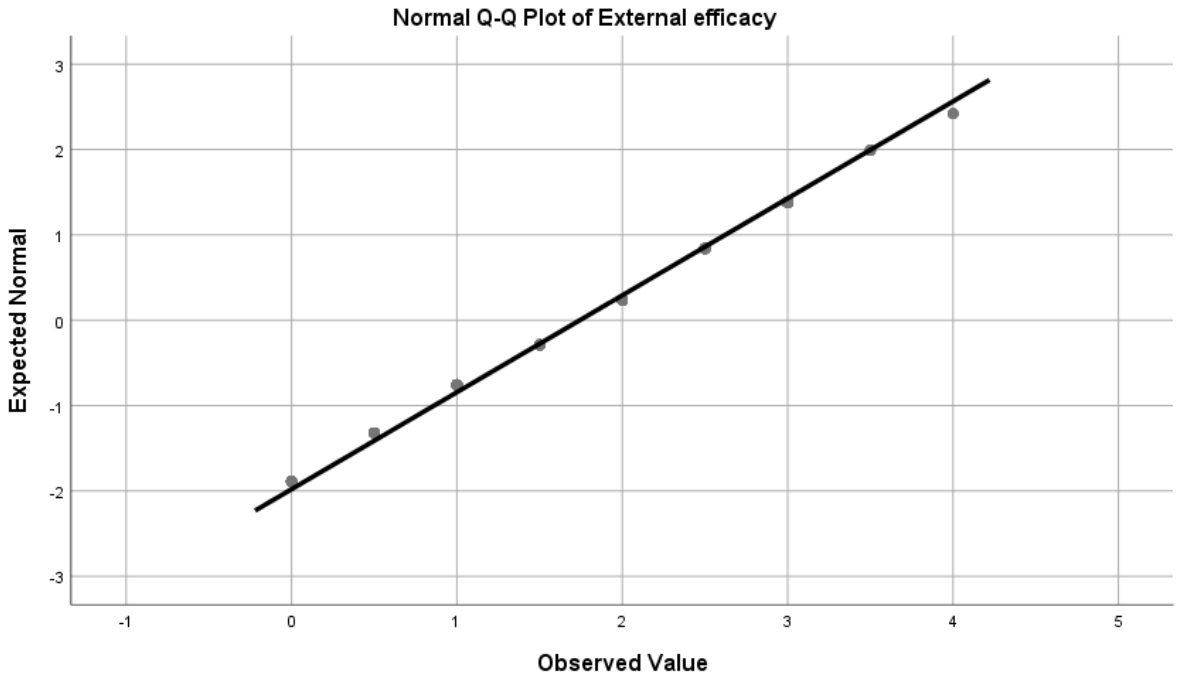
```
32.
33.         #For every row in the dataset
34.         for i, row in df.iterrows():
35.             #Set the index equal to the index of the row plus
    1
36.             index = i + 1
37.
38.             #ID and Set are equal to original dataset
39.             id = row['id']
40.             context = int(row['Context'])
41.             set = int(row['Set'])
42.
43.             #Begin every respondent with task one
44.             task = 1
45.
46.             topic = info_context.iloc[context-1][0]
47.             scale = info_context.iloc[context-1][1]
48.
49.             data2 = [topic, scale]
50.
51.             con_top = 0
52.             con_sca = 0
53.             data3 = [con_top, con_sca]
54.
55.
56.             #Check for the length of the set array
57.             for j in range(len(sets[set-1])):
58.                 #Get the name of the column in the original
    dataset and determine the choice made by the respondent
59.                 name = f"SCE{set}{task}1"
60.                 name_null = f"SCE{set}{task}2"
61.                 choice = row[name]
62.                 choice_null = row[name_null]
63.                 choice = choice.split()
64.                 choice = int(choice[-1])
65.
66.                 if choice_null == 'Yes':
67.                     choice_null = 0
68.                     #Transform the choice to either 0 or 1
69.                     if j % 2 == 0 and choice == 1:
70.                         choice = 1
71.                     elif j % 2 != 0 and choice == 1:
72.                         choice = 0
73.                     elif j % 2 == 0 and choice == 2:
74.                         choice = 0
75.                     elif j % 2 != 0 and choice == 2:
76.                         choice = 1
77.                 elif choice_null == 'No':
```

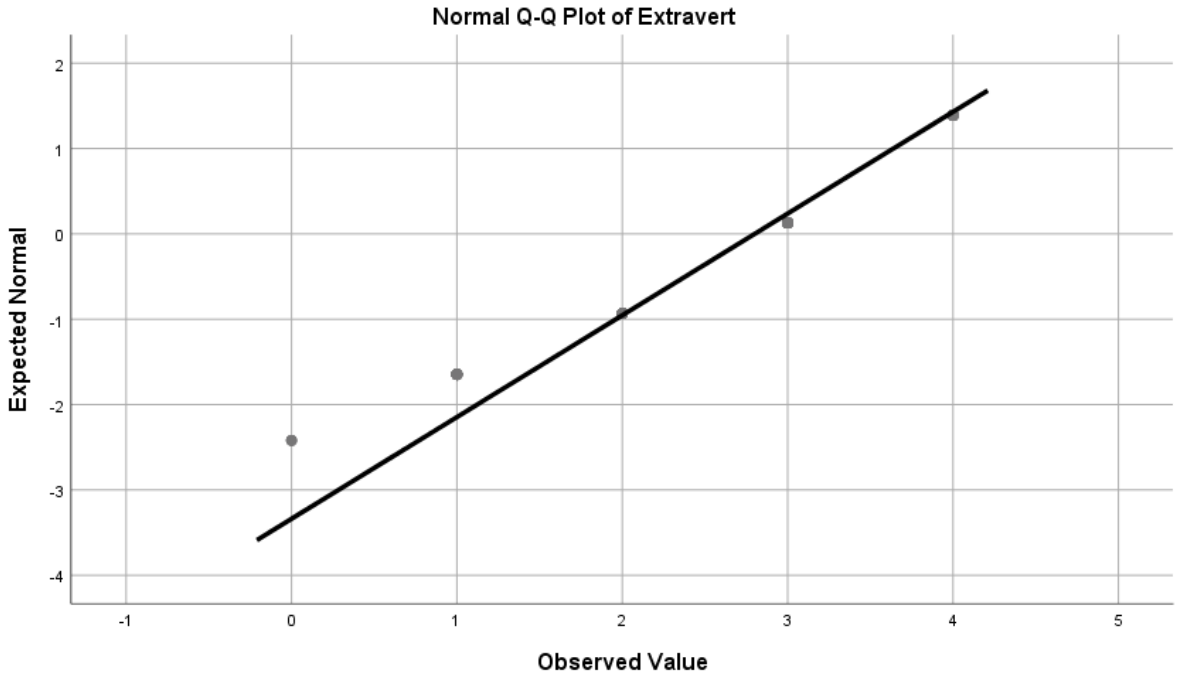
```
            choice = 0
            choice_null = 1
        else:
            print(f"Something went wrong: {choice_null}")

        #If the index of the profile is uneven
        if j % 2 != 0:
            #Get the profile from the set array
            prof = sets[set-1][j]
            #Set the initial data
            data = [index, id, context, set, task, prof, choice, 0, topic, scale]
            data_interaction = []
            #Add the profile information from the profile info array and interaction effects
            for header in info_headers:
                var1 = info.iloc[prof-1][header]
                data.append(var1)
                for header in info_context_headers:
                    var2 = info_context.iloc[context-1][header]
                    interaction = var1 * var2
                    data_interaction.append(interaction)
            #Write the row to the new csv file
            total = np.concatenate((data, data_interaction, data3))
            writer.writerow(total)
            writer.writerow([index, id, context, set, task, 0, choice_null, 1, topic, scale, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, topic, scale])
            #Continue to the next task
            task += 1
            continue
        #If theindex of the profile is even
        else:
            #Get the profile from the set array
            prof = sets[set-1][j]
            #Set the initial data
            data = [index, id, context, set, task, prof, choice, 0, topic, scale]
            data_interaction = []
            #Add the profile information from the profile info array and interaction effects
            for header in info_headers:
                var1 = info.iloc[prof-1][header]
```

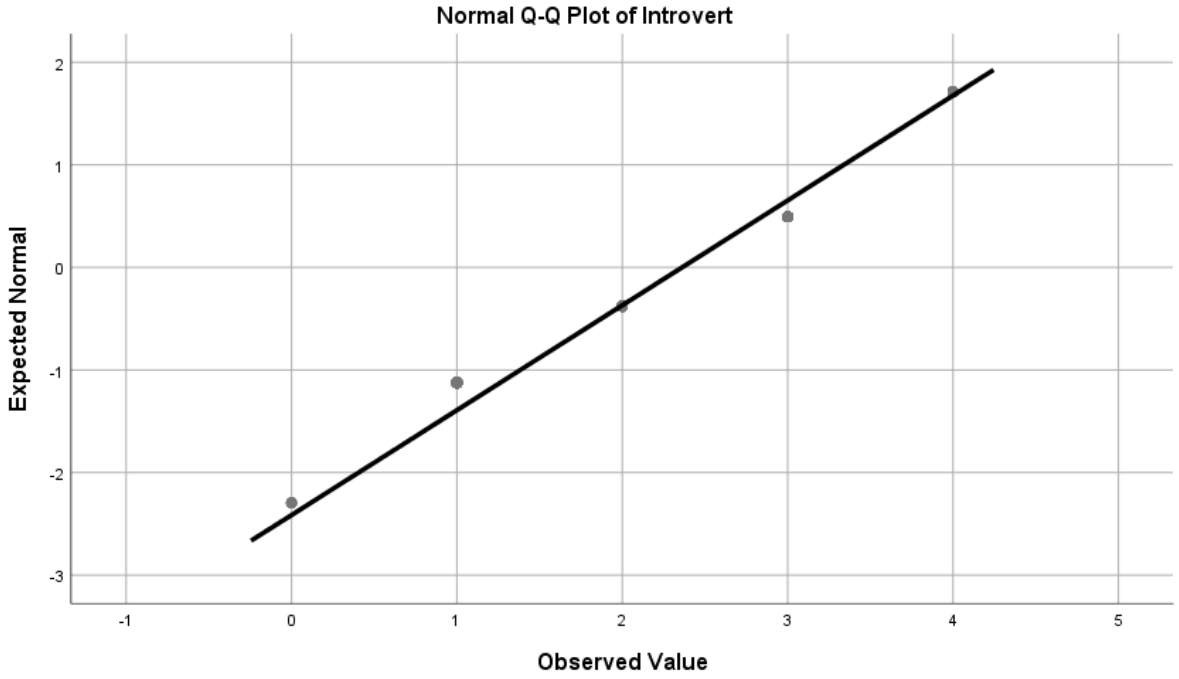
```
115.                        data.append(var1)
116.                        for header in info_context_headers:
117.                            var2 = info_context.iloc[context-
   1][header]
118.                            interaction = var1 * var2
119.
   data_interaction.append(interaction)
120.                    #Write the row to the new csv file
121.                    total       =       np.concatenate((data,
   data_interaction, data3))
122.                    writer.writerow(total)
123.                    #DO NOT CONTINUE TO NEW TASK, REMAIN AT
   CURRENT TASK (SEE INDEX OF SET ARRAYS)
```

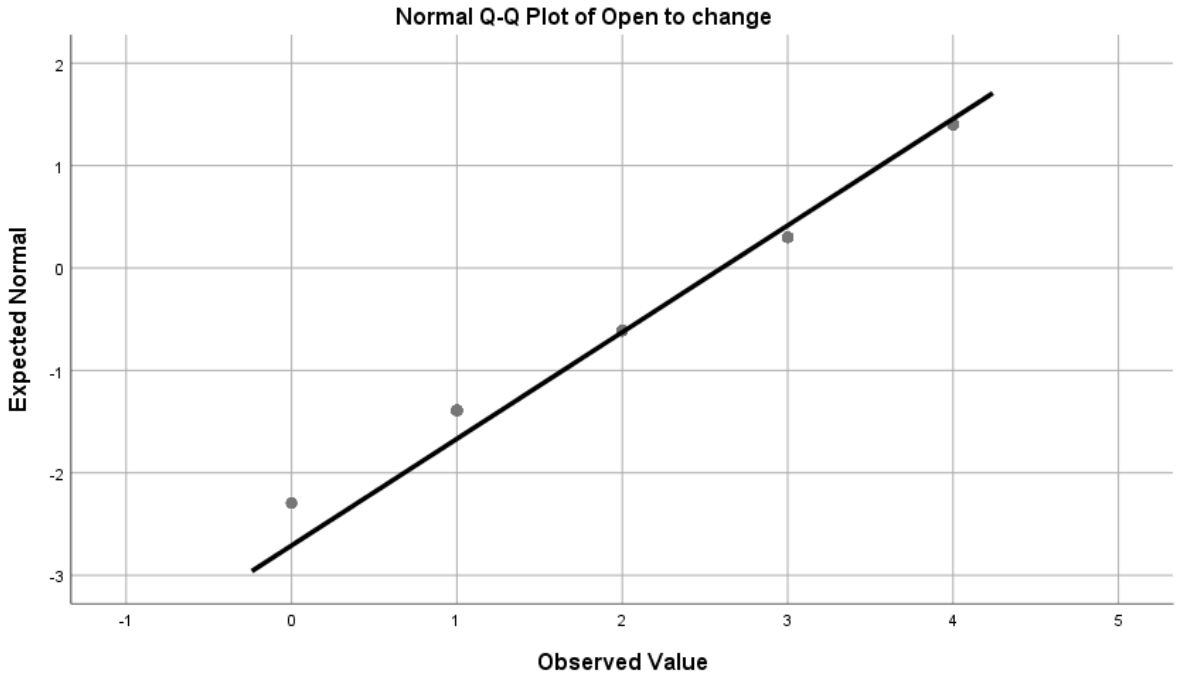
Appendix E: Q-Q plots

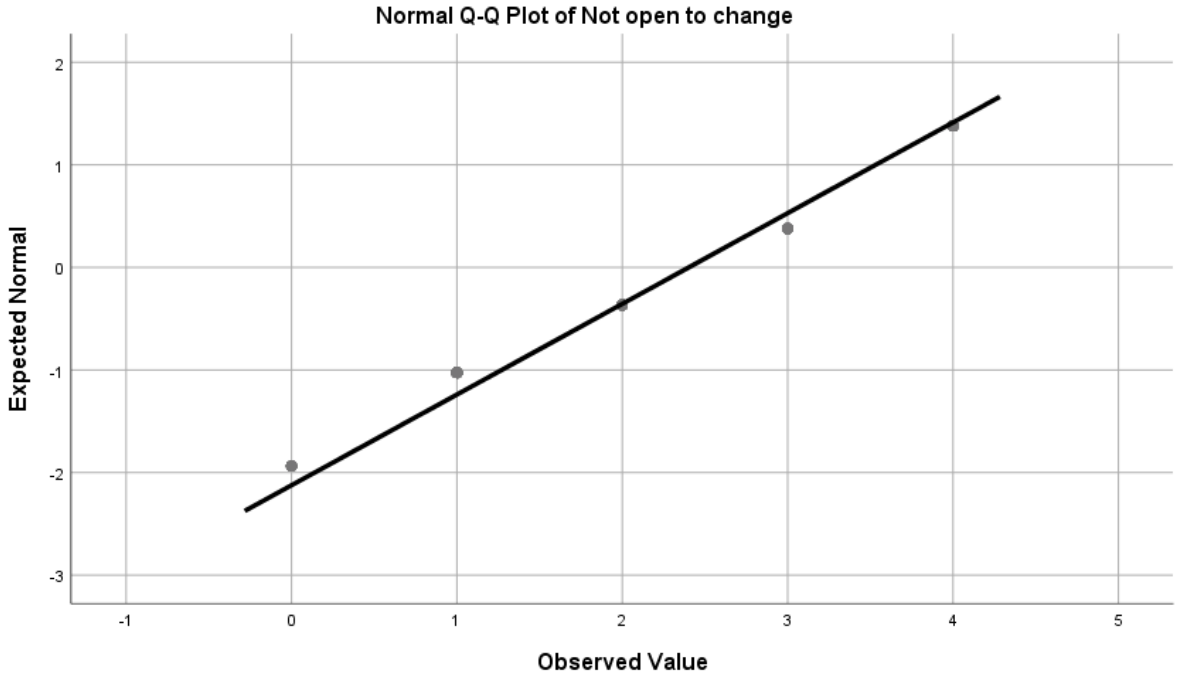





Normal Q-Q Plot of Extravert
Expected Normal
Observed Value
2
1
0
-1
-2
-3
-4
-1
0
1
2
3
4
5


Normal Q-Q Plot of Introvert
Expected Normal
Observed Value
2
1
0
-1
-2
-3
-1
0
1
2
3
4
5


Normal Q-Q Plot of Open to change
Expected Normal
Observed Value
2
1
0
-1
-2
-3
-1
0
1
2
3
4
5


Normal Q-Q Plot of Not open to change
Expected Normal
Observed Value
2
1
0
-1
-2
-3
-1
0
1
2
3
4
5

Appendix F: Categorization of other motivations

Motivations to participate

Frequency	Category	Colour code	Name
2	1		Stay informed
2	2		Provide local knowledge
4	3		Being involved with your own living environment
2	4		Interest in participation
11	5		Affects own living environment
3	6		Contribute
2	7		Knowing that you can participate
4	8		Other

Category	Colour coded categorization of motivations to participate
7	als ik daadwerkelijk van de mogelijkheid op de hoogte wordt gesteld
2,3	Betrokkenheid bij buurt en stad, overtuiging dat bewoners de situatie beter kennen
3	Betrokkenheid bij mijn directe leefomgeving
3	betrokkenheid bij omgeving
6	Bijdragen aan kwaliteit van mijn leefomgeving.
7	eerst te weten komen dat er een participatie proces is
4	Geinteresseerd in participatieproces
2	Heb niet het idee dat de ambtenaren en wethouders weten wat er speelt in een wijk. Je weet het pas het beste als je er woont en weet wat er dagelijks speelt.
5	het gaat om mijn eigen leefomgeving dus daar wil ik best vanuit mijn perspectief over meedenken
5	het zou mijn leefomgeving kunnen beinvloeden
2	Ik als bewoner kan zien waar de stad behoefte aan heeft en hoe de staf leefbaar gehouden kan worden
3	Ik ben community consultant, ik zou graag bij de community van mijn buurt/stad betrokken zijn
5	Ik ben inwoner en ondernemer en heb hierdoor een belang bij mijn directe woon- en werkomgeving
8	Ik wil horen wat buurtgenoten vinden en dat de gemeente onze mening ook wil horen en belangrijk vindt
6	Ik wil mijn creakritisch denken inzetten om wat moois neer te zetten of fouten te voorkomen.
1	Ik wil weten wat er gaat gebeuren in mijn omgeving
5	Indien het mijn woonsituatie zou beïnvloeden.
3	Interesse in de wijk en omgeving waar ik woon.
5	Met name wanneer het voor mij persoonlijk belangrijk is (bijv. Als het echt om mijn wijk gaat)
5	Mijn leefomgeving is belangrijk voor mij
1	Nieuwe plannen voor eigen omgeving aanhoren
5	Omdat de ontwikkeling invloed heeft op mij. Bv. Nieuwe weg bij mijn huis
5	Omdat het mijn leefomgeving is
5	raakt mijn leefomgeving
8	Te druk met leefbaarheid en woongenot voor de bewoners in eigen wijk

8	toekomstig bewoner
4	Vind het interessant om met medebewoners samen na te denken over wijk of stad
5	Wanneer mijn leefomgeving sterk zal veranderen.
8	Weet het niet
6	zorgen dat maatschappelijke ontwikkelingen voldoende meegenomen worden in stedelijke ontwikkeling
5	Zorgen voor een betere woon omgeving

Motivations not to participate

Frequency	Category	Colour code	Name
11	1		No trust in municipality/participation process
2	2		Insufficient possibilites to participate
13	3		(The feeling that) nothing is done with input
7	4		No interest in project
7	5		(The feeling that) participation has no influence
1	6		No feedback
4	7		Not knowing that you can participate
2	8		Process not well designed

Category	Color coded categorization of other motivations not to participate
1	(Uit ervaring) weinig vertrouwen in integriteit en wil van gemeente om burger een volwaardige rol te geven. Participatie is helaas vaak een andere vorm van informeren, waarbij de nuances ingekleurd kunnen worden.
2	Als er geen ruimte is om de geluiden van de burger te betrekken in de beleid- of planvorming
3	Als er niets wordt gedaan met informatie
4	Als het totaal niet mijn interesse zou hebben, of alles al vast staat.
3	Als ik het idee krijg dat de gemeente niets wil doen met de inbreng van de bewoners
5	Als je effectief geen enkele invloed hebt, a la inspraak achteraf
3	als je niks terugziet van aangereikte tips
3	Als mijn deelname geen toegevoegde waarde zou hebben
1	Als niet alleen de inhoud maar ook proces te veel door overheid of communicatiejongens gestuurd wordt. Dat slappe gedoe over kaders vooraf
1	Als participatie niet serieus genomen wordt
1	bestuurders doen toch wat ze zelf willen. Participatie is tactiek van verdeel en heers
7	bij niet op de hoogte te worden gesteld van de mogelijkheid
5	bij participatie zonder invloed
3	Dat er niks mee gedaan wordt
2	De gelegenheid om deel te nemen aan participatie wordt onvoldoende geboden.
7	De uitnodiging tot deelname ontbreekt momentaan
4	Does not address environmental issues
5	Er is geen terugkoppeling, of er is geen mogelijkheid om daadwerkelijk het besluit te beinvloeden
3	Er wordt niks mee gedaan

3	er wordt weinig met mijn inbreng gedaan
4	gebonden aan onderwerp
1	Gedemotiveerd raken door eerdere ervaringen met de gemeente
5	geen invloed
5	Geen invloed
1	Geen vertrouwen dat invloed helpt
4	Hangt af van het project en de tijdsinvestering.
1	Heb niet het idee dat de lokale ambtenarij open staat daarvoor. Enkel tijdens de verkiezingen luisteren ze en daarna niet meer.
3	Heeft geen zin omdat de mening niet echt meetelt.
8	Het is alleen via een internetoverleg
1	Het wantrouwen in de gemeente.
4	Het zou me niet altijd uitmaken wat er besloten wordt
7	Ik ben te weinig actief geïnformeerd door de gemeente over het meedenken over stedelijke ontwikkelingen
5	Ik heb geen invloed op het besluit van de gemeente
3	ik heb het gevoel dat het puur voor de buhne is en dat de uitkomsten toch genegeerd worden.
3	Ik heb niet het gevoel dat er word geluisterd naar mijn input
3	Indien er geen waarde aan input wordt gehecht
3	Indien ik me(individueel/groepsverband) niet gehoord zou voelen en dus niet als meerwaarde.
	n.v.t.
	N.v.t.
1	Niet serieus genomen worden
1	Niet veel vertrouwen in de hoeveelheid invloed die je kunt uitoefenen
	nvt
1	Omdat ik niet denk dat er oprecht geluisterd wordt naar burgers. En de processen zijn zo traag en onduidelijk dat de gemiddelde ambtenaar het ook niet meer weet.
8	Proces niet goed ingericht
3	Telkens genegeerd worden door bestuur en raad van de stad
6	There is not communication on what is being implemented
5	Verwachting hebben om weinig invloed uit te kunnen oefenen. Het besluit is al genomen. Participatie vindt plaats maar heeft geen echt effect/invloed op een besluit.
4	Wanneer de ontwikkeling over een gebied gaat welke mij niet persoonlijk raakt
4	Wanneer de ontwikkeling te ver uit mijn woonomgeving betreft heb ik daar minder behoefte aan
7	weet niet dat er een participatie proces is

Appendix G: Overview of bivariate analyses

Variable	Measurement scale	Bivariate analysis
Dependent variable		
Class membership	Nominal (dichotomous)	-
Independent variables		
Sociodemographic factors		
Age	Ordinal	Chi-square test
Gender	Nominal (dichotomous)	Chi-square test
Level of education	Nominal (dichotomous)	Chi-square test
Ethnicity	Nominal (dichotomous)	Chi-square test
Length of residence	Ordinal	Chi-square test
Psychological factors		
Extravert	Interval	Independent samples t-test
Introvert	Interval	Independent samples t-test
Open to change	Interval	Independent samples t-test
Not open to change	Interval	Independent samples t-test
Social factors		
Political engagement	Ordinal	Chi-square test
Societal engagement	Ordinal	Chi-square test
Political factors		
External efficacy	Interval	Independent samples t-test
Internal efficacy	Interval	Independent samples t-test
Participation factors		
Previous participation	Nominal	Chi-square test
Motivations (not) to participate	Nominal (dichotomous)	Chi-square test
Channels	Nominal (dichotomous)	Chi-square test

Appendix H: Nlogit output MNL models

MNL model conditional choice without interactions

```
|->          IMPORT;FILE="C:\Users\s150254\Documents\Leerjaar          2020-
2021\Afstuderen\Data analyse\Datasets\Choice data\Dataset_MNL.csv"$
Last observation read from data file was     5136
|-> nlogit
    ;lhs=choice
    ;choices=0,1
    ;rhs=Chan,LoI1,LoI2,ColInd,FoI1,FoI2,TR1,TR2,FB1,FB2
    ;pds=8$
Iterative procedure has converged
Normal exit:   5 iterations. Status=0, F=     .1548911D+04

------------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -1548.91126
Estimation based on N =   2568, K =  10
Inf.Cr.AIC  =   3117.8 AIC/N =    1.214
--------------------------------------
           Log likelihood R-sqrd R2Adj
Constants only  -1757.1608  .1185 .1151
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  2568, skipped    0 obs
--------+---------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z     |z|>Z*         Interval
--------+---------------------------------------------------------------------
--
    CHAN|    -.04190          .03152    -1.33  .1838     -.10369     .01988
    LOI1|    -.28265***       .05363    -5.27  .0000     -.38777    -.17754
    LOI2|     .13785***       .04463     3.09  .0020      .05038     .22532
  COLIND|    -.10530***       .03369    -3.13  .0018     -.17133    -.03927
    FOI1|     .25500***       .04317     5.91  .0000      .17039     .33961
    FOI2|     .15704***       .03908     4.02  .0001      .08044     .23363
     TR1|     .31439***       .04765     6.60  .0000      .22100     .40777
     TR2|     .09130**        .03881     2.35  .0187      .01522     .16737
     FB1|    -.69480***       .05012   -13.86  .0000     -.79303    -.59656
     FB2|     .24585***       .04241     5.80  .0000      .16273     .32898
--------+---------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Nov 30, 2021 at 01:52:37 PM
------------------------------------------------------------------------------
--
```

MNL model conditional choice with significant interactions

```
|-> nlogit
    ;lhs=choice
    ;choices=0,1

;rhs=Chan,LoI1,LoI2,ColInd,FoI1,FoI2,TR1,TR2,FB1,FB2,LoI2_sca,TR2_sca,FB2_s
ca
    ;pds=8$
Iterative procedure has converged
Normal exit:   5 iterations. Status=0, F=    .1543085D+04

---------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -1543.08522
Estimation based on N =   2568, K =  13
Inf.Cr.AIC  =   3112.2 AIC/N =    1.212
--------------------------------------
           Log likelihood R-sqrd R2Adj
Constants only  -1757.1608  .1218 .1174
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  2568, skipped    0 obs
--------+------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+------------------------------------------------------------------
--
    CHAN|    -.04292         .03160    -1.36  .1744     -.10486    .01902
    LOI1|    -.28821***      .05388    -5.35  .0000     -.39381   -.18261
    LOI2|     .24374***      .06162     3.96  .0001      .12297    .36451
  COLIND|    -.10870***      .03383    -3.21  .0013     -.17500   -.04240
    FOI1|     .25415***      .04326     5.87  .0000      .16936    .33895
    FOI2|     .15462***      .03915     3.95  .0001      .07790    .23135
     TR1|     .32167***      .04796     6.71  .0000      .22768    .41566
     TR2|     .16134***      .05571     2.90  .0038      .05214    .27053
     FB1|    -.70160***      .05029   -13.95  .0000     -.80017   -.60304
     FB2|     .16433***      .05612     2.93  .0034      .05434    .27432
LOI2_SCA|    -.19742**       .07959    -2.48  .0131     -.35342   -.04142
 TR2_SCA|    -.12745*        .07350    -1.73  .0829     -.27150    .01660
 FB2_SCA|     .15790**       .07131     2.21  .0268      .01815    .29766
--------+------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Dec 13, 2021 at 01:13:54 PM
---------------------------------------------------------------------------
--
```

MNL model unconditional choice without interactions

```
|-> nlogit
    ;lhs=choice
    ;choices=0,1,2
    ;rhs=Const,Chan,LoI1,LoI2,ColInd,FoI1,FoI2,TR1,TR2,FB1,FB2
    ;pds=8$
Iterative procedure has converged
Normal exit:   5 iterations. Status=0, F=    .2580468D+04

---------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -2580.46765
Estimation based on N =   2568, K =  11
Inf.Cr.AIC  =   5182.9 AIC/N =    2.018
--------------------------------------
           Log likelihood R-sqrd R2Adj
Constants only  -2773.8811  .0697 .0677
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  2568, skipped    0 obs
--------+------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+------------------------------------------------------------------
--
   CONST|    -.06009         .05151    -1.17  .2434     -.16103    .04086
    CHAN|    -.04159         .03084    -1.35  .1774     -.10203    .01885
    LOI1|    -.25852***      .05295    -4.88  .0000     -.36230   -.15475
    LOI2|     .09561**       .04292     2.23  .0259      .01149    .17974
  COLIND|    -.18287***      .03239    -5.65  .0000     -.24636   -.11939
    FOI1|     .25623***      .04539     5.65  .0000      .16727    .34519
    FOI2|     .18262***      .04069     4.49  .0000      .10288    .26236
     TR1|     .34409***      .04742     7.26  .0000      .25116    .43702
     TR2|     .03219         .03923      .82  .4119     -.04470    .10909
     FB1|    -.70706***      .05326   -13.28  .0000     -.81145   -.60267
     FB2|     .28807***      .04257     6.77  .0000      .20463    .37151
--------+------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Nov 30, 2021 at 02:07:24 PM
---------------------------------------------------------------------------
--
```

MNL model unconditional choice with significant interactions

```
|-> nlogit
    ;lhs=choice
    ;choices=0,1, 2
    ;rhs=Const,Chan,LoI1,LoI2,ColInd,FoI1,FoI2,TR1,TR2,FB1,FB2,ColInd_s
    ;pds=8$
Iterative procedure has converged
Normal exit:   5 iterations. Status=0, F=    .2579284D+04

------------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -2579.28440
Estimation based on N =   2568, K =  12
Inf.Cr.AIC  =   5182.6 AIC/N =    2.018
--------------------------------------
           Log likelihood R-sqrd R2Adj
Constants only  -2773.8811  .0702 .0680
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  2568, skipped    0 obs
--------+---------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z     |z|>Z*         Interval
--------+---------------------------------------------------------------------
--
   CONST|    -.06053         .05152    -1.17   .2401     -.16150    .04045
    CHAN|    -.04211         .03086    -1.36   .1723     -.10259    .01837
    LOI1|    -.25923***      .05297    -4.89   .0000     -.36304   -.15541
    LOI2|     .09513**       .04294     2.22   .0268      .01096    .17929
  COLIND|    -.13376***      .04540    -2.95   .0032     -.22274   -.04477
    FOI1|     .25708***      .04540     5.66   .0000      .16810    .34605
    FOI2|     .18256***      .04069     4.49   .0000      .10281    .26231
     TR1|     .34535***      .04743     7.28   .0000      .25240    .43831
     TR2|     .03166         .03925      .81   .4199     -.04527    .10859
     FB1|    -.71034***      .05334   -13.32   .0000     -.81488   -.60581
     FB2|     .28949***      .04258     6.80   .0000      .20604    .37295
COLIND_S|    -.09628         .06261    -1.54   .1241     -.21898    .02643
--------+---------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Dec 13, 2021 at 11:42:52 AM
------------------------------------------------------------------------------
--
```

Appendix I: Model fit statistics all LC models

Lc model		BIC	AIC	ρ^2	ρ^2 adj.	Extreme values	Insignificant values
Conditional choice with main effects	*1 class*	3155.51	3117.80	0.13	0.13	-	-
	2 classes	3162.95	3083.75	0.17	0.14	Yes	No
	3 classes	3138.95	3018.26	0.17	0.16	No	No
Conditional choice with all interactions	*1 class*	3249.94	3136.80	0.14	0.13	-	-
	2 classes	3299.06	3069.00	0.17	0.15	No	No
	3 classes	3415.93	3068.96	0.19	0.16	Yes	Yes
Conditional choice with main effects	*1 class*	5224.49	5183.00	0.09	0.09	-	-
	2 classes	4756.22	4669.48	0.18	0.18	No	No
	*3 classes**	-	-	-	-	-	-
Conditional choice with all interactions	*1 class*	5327.46	5203.00	0.09	0.08	-	-
	2 classes	4945.29	4692.60	0.19	0.18	No	No
	3 classes	4935.04	4554.12	0.23	0.21	Yes	Yes

*Note. *Error: Estimated variance matrix of estimates is singular*

Appendix J: Nlogit output LC model with unconditional choice and significant interaction effects

```
--------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -2573.54414
Estimation based on N =   2568, K =  17
Inf.Cr.AIC  =   5181.1 AIC/N =    2.018
--------------------------------------
           Log likelihood R-sqrd R2Adj
Constants only  -2773.8811  .0722 .0659
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  2568, skipped    0 obs
--------+-----------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+-----------------------------------------------------------------
--
 CONST|1|     -.05952         .05160    -1.15  .2487     -.16066     .04161
  CHAN|1|     -.02485         .04453     -.56  .5768     -.11212     .06243
  LOI1|1|     -.15256**        .06891    -2.21  .0268     -.28763    -.01750
  LOI2|1|      .09499**        .04300     2.21  .0272      .01071     .17928
COLIND|1|     -.16394***       .05497    -2.98  .0029     -.27169    -.05620
  FOI1|1|      .25936***       .04549     5.70  .0000      .17020     .34852
  FOI2|1|      .12455**        .05419     2.30  .0215      .01834     .23076
   TR1|1|      .34763***       .04750     7.32  .0000      .25453     .44073
   TR2|1|      .03194          .03931      .81  .4165     -.04511     .10898
   FB1|1|     -.71227***       .05345   -13.33  .0000     -.81703    -.60752
   FB2|1|      .33703***       .05428     6.21  .0000      .23064     .44342
CHAN_S|1|     -.02988          .05995     -.50  .6182     -.14737     .08761
LOI1_S|1|     -.22069**        .09146    -2.41  .0158     -.39995    -.04143
COLIN1|1|      .07208          .06290     1.15  .2518     -.05121     .19537
COLIN2|1|     -.11224*         .06331    -1.77  .0762     -.23632     .01184
FOI2_T|1|      .12166          .07400     1.64  .1002     -.02337     .26668
FB2_TO|1|     -.09848          .06968    -1.41  .1576     -.23506     .03809
--------+-----------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jan 10, 2022 at 10:07:11 AM
--------------------------------------------------------------------------
--

Iterative procedure has converged
Normal exit:  43 iterations. Status=0, F=    .2292510D+04

--------------------------------------------------------------------------
--
Latent Class Logit Model
Dependent variable                CHOICE
Log likelihood function     -2292.50952
Restricted log likelihood   -2821.23636
Chi squared [ 35](P= .000)   1057.45368
Significance level               .00000
McFadden Pseudo R-squared      .1874096
```

```
Estimation based on N =   2568, K =  35
Inf.Cr.AIC  =   4655.0 AIC/N =    1.813
---------------------------------------
           Log likelihood R-sqrd R2Adj
No coefficients -2821.2364  .1874 .1818
Constants only  -2773.8811  .1735 .1679
At start values -2573.5610  .1092 .1031
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
---------------------------------------
Response data are given as ind. choices
Number of latent classes =           2
Average Class Probabilities
     .605  .395
LCM model with panel has     321 groups
Fixed number of obsrvs./group=       8
Number of obs.=  2568, skipped    0 obs
--------+------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z     |z|>Z*         Interval
--------+------------------------------------------------------------------
--
        |Random utility parameters in latent class -->>  1.................
 CONST|1|   -1.43343***       .13133   -10.91   .0000    -1.69083  -1.17602
  CHAN|1|     .06222          .05763     1.08   .2803     -.05073    .17517
  LOI1|1|    -.15170*         .08831    -1.72   .0858     -.32479    .02139
  LOI2|1|     .19039***       .05630     3.38   .0007      .08005    .30074
COLIND|1|    -.08697          .07472    -1.16   .2444     -.23343    .05948
  FOI1|1|     .09494          .05907     1.61   .1080     -.02083    .21071
  FOI2|1|     .21285***       .06693     3.18   .0015      .08168    .34403
   TR1|1|     .16087**        .06665     2.41   .0158      .03023    .29151
   TR2|1|     .11487**        .05071     2.27   .0235      .01547    .21426
   FB1|1|    -.78475***       .06846   -11.46   .0000     -.91894   -.65057
   FB2|1|     .28295***       .06898     4.10   .0000      .14775    .41815
CHAN_S|1|    -.16412**        .07786    -2.11   .0350     -.31672   -.01152
LOI1_S|1|    -.33879***       .12148    -2.79   .0053     -.57689   -.10069
COLIN1|1|     .25857***       .08658     2.99   .0028      .08887    .42827
COLIN2|1|    -.18476**        .08740    -2.11   .0345     -.35606   -.01346
FOI2_T|1|     .10917          .09290     1.18   .2399     -.07290    .29125
FB2_TO|1|    -.09000          .09177     -.98   .3267     -.26986    .08986
        |Random utility parameters in latent class -->>  2.................
 CONST|2|    1.57606***       .14764    10.68   .0000     1.28669   1.86542
  CHAN|2|    -.26416**        .10601    -2.49   .0127     -.47194   -.05638
  LOI1|2|    -.38467**        .16115    -2.39   .0170     -.70052   -.06883
  LOI2|2|    -.17568          .10767    -1.63   .1028     -.38672    .03535
COLIND|2|    -.42116***       .14288    -2.95   .0032     -.70121   -.14112
  FOI1|2|    1.04557***       .13294     7.86   .0000      .78501   1.30614
  FOI2|2|    -.08632          .17093     -.50   .6136     -.42134    .24870
   TR1|2|    1.16547***       .13014     8.96   .0000      .91041   1.42054
   TR2|2|     .07671          .10937      .70   .4831     -.13766    .29108
   FB1|2|    -.64118***       .14714    -4.36   .0000     -.92957   -.35279
   FB2|2|     .48832***       .14892     3.28   .0010      .19644    .78020
CHAN_S|2|     .25544**        .12619     2.02   .0430      .00810    .50278
LOI1_S|2|    -.05275          .17399     -.30   .7618     -.39377    .28827
COLIN1|2|    -.35511**        .15449    -2.30   .0215     -.65791   -.05232
COLIN2|2|    -.00493          .14253     -.03   .9724     -.28429    .27443
FOI2_T|2|     .55766***       .20177     2.76   .0057      .16220    .95312
FB2_TO|2|    -.34868**        .16431    -2.12   .0338     -.67072   -.02665
        |Estimated                        latent                      class
probabilities.............................
```

```
 PrbCls1|     .60532***       .03451    17.54   .0000       .53769    .67296
 PrbCls2|     .39468***       .03451    11.44   .0000       .32704    .46231
--------+-------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jan 10, 2022 at 10:07:13 AM
-------------------------------------------------------------------------------
--
```

Appendix K: Infographic with main implications for municipalities (NL)