Nudging employees:
Increasing the response rate to employee satisfaction surveys using nudges

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Date: 24-07-2020

Reading guide

This study has been commissioned by a company, located in the Netherlands, oriented in the field of railway infrastructure and maintenance. Due to competitive interests, this company wishes to remain anonymous. Therefore, from now on a pseudonym will be used to refer to this company. The pseudonym that will be used is 'Company X'. Whenever this name is used, the company that commissioned this research is being referred to.

1. Abstract

1.1 Introduction

In recent years the number of reports from employees suffering from burnouts or excessive stress symptoms have been increasing. The costs associated with stress-related complaints are estimated to be roughly 2.8 billion euro's, per year. This indicates the importance of healthy employees. To be informed about the (perceived) health of employees, business execute employee satisfaction surveys. Company X is interested in improving their current surveying method in a way that delivers higher response rates. On behalf of and in consultation with Company X, this study will research nudges that are promised to increase response rate. A nudge is a deliberately chosen intervention aimed at subtly shaping human behavior.

1.2 Theoretical framework

In this section, existing scientific literature was consulted, based on which numerous promising nudges were presented and discussed. For each of these nudges, their viability for testing and implementation within the environment and criteria of Company X was assessed. Based on these assessments, two nudges were chose for further investigations and testing: The use of persuasive textual elements. The second of which was the use of a reduced survey size.

1.3 Method

There were three groups for the textual elements. One group that received texts that emphasized the personal benefit of participating in the survey, one group that received texts that emphasized the group (colleagues) benefit of participation, and one group that received no additional persuasive texts. These texts were shown to the employees via the invitation e-mails and in the informed consents. Additionally, there were two types of survey distributions. One is the traditional way, where all questions are provided at once in one long survey. The other, alternative, is that same survey split up into six separate parts which are distributed to the employees in sequence. This resulted in a study with a 3x2 design. The response data was collected and analyzed using SPSS and Excel.

1.4 Results

Results showed that groups that were asked to participate in the long, traditional type survey had a significantly higher response rate that the groups that were asked to participate in the alternative survey type. Additionally, the group that was exposed to persuasive texts that emphasized the personal benefit of participation showed the highest response rate. Groups that were exposed to the emphasis of group benefit showed the lowest response rate. However, these differences were found to be statistically insignificant.

1.5 Discussion

Based on the results from this study it must be concluded that making use of a short survey distribution type should not be implemented in the current method of executing employee

satisfaction surveys, as the traditional method showed significantly higher response rates. Secondly, it is recommended that if persuasive texts are used, they are emphasizing the personal benefit, as in this study those texts resulted in the highest response. However, as these results were statistically insignificant, it is not strictly recommended to use persuasive text elements.

Despite results not showing clear improvements over the current methods, this study is interesting as it provides a concise list of promising nudges, and shows promising results which with methodological improvements by future studies can possibly be turned into significant results.

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2. Introduction

In recent years, the number of reports regarding employees suffering from burnouts or other symptoms of excessive stress has been increasing (Centraal Bureau voor de Statistiek, 2018). According to an article of the Dutch newspaper NRC (2019), the costs associated with stress-related complaints in the Netherlands are roughly estimated to be 2,8 billion euro's. These costs stem from continued payroll, substitution costs, loss of productivity or service, health and safety services costs, and on average come down to 200 to 400 euro's a day, per employee (Klees, 2020). This underlines what a big impact the health of employees has on the economy and how important having a healthy workforce is to an organization.

Because a healthy workforce is important, businesses have interest in being informed about the health and satisfaction of their employees. Company X is one of those businesses that is interested in the health and satisfaction of their employees, and therefore commissioned this study to be executed. In the past they have executed large quantitative employee satisfaction researches in the form of surveys, which were performed by an external research bureau.

According to several research agencies, namely RIGHT, Effectory, DUO, which are specialized in market and employee researches, an employee satisfaction research can be executed in different ways. Quantitative or qualitative, online surveys or regular surveys, as well as in-depth interviews or focus groups. However, the most common way is by executing an employee satisfaction survey, which is done by distributing an (online) survey among the workforce (Duo Market Research, 2020; Effectory, 2017; Right Marktonderzoek, 2020).Company X also makes use of this method, and is interested in improving it. Therefore, despite the existence of other methods of doing an employee satisfaction research, this study will focus solely on quantitative employee satisfaction surveys and therefore will not go further into the specifics of the other named methods.

In the past, Company X has executed large employee satisfaction surveys, performed by an external research bureau. In 2016 and 2017, an extensive questionnaire was distributed among all of Company X's employees. With a response rate of 54%, Company X is not fully satisfied with the level of feedback it is receiving with this method. In addition, the extensive questionnaire negatively influenced the time it took to evaluate the results of the research, and act accordingly. In 2017, it took roughly six months to evaluate the results of the questionnaire. In order to gain more accurate and timely insights regarding their employees attitudes, Company X wants to receive feedback of its employees more frequently, a higher response rate, and faster processing of the outcomes of the questionnaire. Therefore, Company X is interested in developing a new, more effective and efficient method of executing employee satisfaction surveys.

In consultation with Company X, it has been decided that this study will focus on possibilities to increase the response rates to their employee satisfaction surveys. More specifically, this study will focus on researching nudges that can be implemented into Company X's method of surveying that increase response rate.

Nudges are deliberately chosen interventions aimed at changing human behavior. Nudges are used in a wide range of areas and can be found in both the real world environment as well as in the online environment. Municipalities placing light posts in areas where a lot of youngsters come together is an example of a nudge in the real world environment. The light posts enlighten the area where youngsters hang out. Because the youngsters are clearly visible, they are less likely to participate in criminal activities or cause nuisance. The light posts do not prohibit the youngsters in their activities, movement, or thinking. They do not force them into doing or not doing certain things. They only

subtly change the behavior of the youngsters because they feel they can easily be watched. This results in them behaving more socially desirable. When creating an account for an online web shop, people are always asked to sign up for the marketing mailing lists. Setting the default option to 'sign up' is a form of a nudge in the online environment. Now, people have to actively uncheck the box in order to not receive marketing e-mails, which results in more people signing up for said e-mails. This nudge does not prohibit people in making their own choice, it just requires an extra action to make the choice that is undesirable from the web shop's point of view.

Using nudges, deliberately chosen interventions aimed at changing human behavior, has been shown to be an effective method for increasing response rates to surveys (Korn, Betsch, Böhm, Meier, 2018). However, Company X cannot simply implement any nudge that is deemed as effective.

Therefore, this research aims to answer the following research question:

'*What type of nudge should Company X implement in their method of surveying employee satisfaction in order to increase response rates?*'

First additional information regarding Company X will be provided. Subsequently, in order to answer the main research question, several sub-questions will need to be answered first.

These sub-questions are:

Sub-question 1: *'What are promising nudges for increasing the response rates to online surveys?*'

Sub-question 2: *'Which of these promising nudges is/are viable for testing within the requirements and environment of Company X?*'

Sub-question 3: *'What is the effect of the viable nudge(s) on the response rate of an online employee satisfaction survey?*'

First, in the theoretical framework, it will be discussed which nudges are deemed to have a positive effect on response rate, according to scientific literature. This will provide an answer to the first sub-question. Subsequently, the advantages and disadvantages, in other words, the viability of these promising nudges will be discussed. This will give an indication of which nudges are promising as well as practical for testing, and will answer the second sub-question. Finally, the nudge(s) that are concluded as promising and viable for testing, will be tested in a field experiment. The results of this test will provide an answer to the third sub-question. Based, and depending on the results from the third sub-question, an answer can be given to the main research question.

Additionally, in consultation with Company X, the content of the test-survey will be researched and developed to provide insightful information while testing response rate. However, as the details of the development of the test-survey's content are not relevant for the scope of this research, they are not included in this report.

3. Contextual Information

Company X is an organization that operates in the field of railway structures and railway technology. Company X provides technology for railway systems on national as well as international level. By implementing innovative solutions in the area of railway infrastructure, -vehicles and mobility, and information systems, Company X aims to make rail transportation more efficient and attractive.

Company X highly values its employees' wellbeing, their satisfaction and attitude towards their job. Most of Company X's employees are categorized as 'executive' employees. These executive employees are mainly working on or near railways and/or construction sites. In addition, two other types of employees can be categorized within Company X, 'staff' and 'supervisors'.

The railways in the Netherlands play a big role in the productivity of the Netherlands, either by transporting stock or by transporting people. Because the railway infrastructure plays a vital role in the Netherlands' transportation system, downtime of the railways needs to be limited as much as possible. During the night, there is the least amount of activity on the Dutch railways. Maintenance of the railway that does not require direct fixing is therefore mostly scheduled after daytime. As a result, executive employees of Company X are regularly scheduled to work night shifts. Among other topics, the influence this working schedule has on the employee satisfaction is something in which Company X is interested.

Furthermore, large projects that are assigned to Company X are assigned by a 'performance-oriented maintenance contract' (Prestatiegericht onderhoudscontract, PGO). Because these contracts are performance oriented, employees of Company X are also rated on their performance. Therefore, Company X is interested in the effect that PGO's have on the workload that its staff, executive as well as its and supervising employees' experience.

Partly as a result of aforementioned factors, Company X conducted a large employee satisfaction research in 2016 and 2017. Company X outsourced the execution of the research to DUO, a market research agency. To get an insight into the satisfaction, experiences and valuations of the employees, the entirety of Company X's workforce was consulted. In consultation with Company X, it was decided that conduct an online employee satisfaction survey. All of the 1794 people that were employed in 2017, received an email on either their business email address or their private email address. To increase the response rate of the employees, after one week and after two weeks, DUO sent out reminder messages to all employees who had not (fully) completed the survey yet. In addition, Company X sent a final internal reminder in the fourth week. This resulted in an overall response rate percentage of 54%, which is lower than the 65% of the research from 2016.

Company X is not fully satisfied with the employee researches from 2016 and 2017. First of all, Company X wants the response rate to be higher than what has previously been achieved. In addition, the results from the extensive survey took roughly six months to be evaluated. Company X wants to be able to see and evaluate the results quickly, so that Company X is able to quickly respond to feedback it considers important or urgent. Furthermore, partly as a result of the long period it takes to evaluate the results, and partly because of the extensive survey, Company X is unable to request feedback of its employees frequently. Company X wants to be able to frequently consult its employees so it can respond quick to rising concerns or reoccurring problems. Therefore, Company X is interested in developing a new method of conducting employee satisfaction surveys. This new method should achieve higher response rates, and give Company X the possibility to frequently receive feedback of its employees, while being able to quickly see the results of each survey.

4. Theoretical Framework

In the upcoming paragraphs, numerous nudges will be discussed that, according to scientific literature, are effective or promising at increasing the response rate to a research, more specifically a survey. This will be done to a limited extent, as the purpose of this is to provide an overview of possible nudges to be used for further testing, not to inform about each and every nudge in fine detail. By doing so, the theoretical framework provides a clear overview of different types of nudges that can be used in different environments. The list of nudges, based on scientific literature, that is provided below is the answer to the first sub-question *"What are promising nudges for increasing the response rate to online surveys?".*

In addition, based on the list of nudges that is provided in the previously mentioned sections, a judgement regarding the feasibility of said nudges will be made, considering the criteria and time-frame of Company X. This will answer the second sub-question "*Which of these promising nudges is/are viable for testing within the requirements and environment of Company X?"*.

Finally, the nudge(s) that is/are chosen in this section will then be looked further into. Based on this further investigation, an initial overall research plan will be made, which will be further defined and explained in the method section of this report.

4.1 Response Rate

The proportion of individuals in a sample population that participates in a survey, in other words, the response rate of a survey, is an important indicator for the quality of the research (Pedersen & Nielsen, 2016). However, surveys with high response rates are still prone to nonresponse errors (Groves & Peytcheva, 2008). If there is a significant difference between individuals who do respond to the survey and those who do not, a nonresponse error has occurred. Nevertheless, high response rates are still deemed as important as it reduces the randomness of the data and can reduce the likelihood of nonresponse error (Dillman, Smyth, & Christian, in (Smith, Witte, Rocha, Basner, 2019). Because Company X is interested in increasing response rate, and because according to literature, increasing the response rate is in the interest of the quality of the research (assuming nonresponse error is mindfully avoided), it is relevant to look at nudges that can influence the response rate of a survey.

4.2 Nudges

Response rates of surveys have been declining over the last 30 years (Tourangeau & Plewes, 2013). Galea & Tracy (2007) propose a number of possible explanations for this. Greater time pressures, survey fatigue, privacy concerns and the increasing amount of circulating surveys are all proposed possible explanations. In response to the declining response rates, research has focused on finding interventions that counter the decline and can help increase the response rate to surveys. Subtle behavioral interventions that operate with incentives and are distinct from standard regulations are known as 'nudges' (Nagatsu, 2015). A vast amount of research has been done on the effects of certain nudges on cases that range from the mobilization of voters in the United States (Bergh, Christensen, & Matland, 2019) to vaccine uptake (Korn et al., 2018). Nudges can subtly give individuals incentives to behave in a certain desired way, or to not behave in a certain undesired way. The following sections will consist of short elaborations of examples of nudges that shown to be either effective or promising at increasing response rate.

4.2.1 Monetary incentives

Firstly, a large amount of research has been done on the effect of monetary incentives on the response rate to surveys. A reoccurring theme is that monetary incentives provided regardless of the individual's participation have a greater positive effect on response rate compared to monetary incentives that are promised to be granted once the individual participates, which often have no effect (Church, 1993; Rose, Sidle, & Griffith, 2007; Smith, Witte, Rocha, & Basner, 2019; Vaughn, Bortnick, Carey, Orgovan, & Munko, 2018). In the study of Smith et al. (2019), individuals who received a prepaid $2 cash incentive were almost three times more likely to respond compared to individuals who were promised a gift card with a higher monetary value.

Some authors argue that this is the result of the 'social exchange theory' (Rose et al., 2007),which assumes that psychological returns and psychological costs associated with a behavior are motivating human behavior (Greenberg, in Rose et al., 2007). If an unconditional monetary incentive is included with the invitation to participate, the individual might feel guilty, which is the psychological cost, if he or she does not participate (Rose et al., 2007). Other authors argue that it is the symbolic power of prepaid monetary incentives that is the motivating factor. A survey with a monetary incentive included can be judged as more important than one without it (Rose et al., 2007).

Although monetary incentives are proven to be effective interventions to increase response rate, it is argued that they are not necessarily the best or most effective ones (Korn et al., 2018; Vaughn et al., 2018). In contrary, according to multiple scientific studies, monetary incentives can even decrease social behavior (Ariely, Bracha, & Meier, 2009). This is in line with studies of Korn et al. (2018) and Vaughn et al. (2018), where it was shown that in pro-social situations, non-monetary incentives had a better participation rate than monetary incentives.

4.2.2 Reminder messages

Subsequently, one reason an individual might not respond to a survey is simply because he or she forgot to do so. An example is the case of voter mobilization, where the nudge consisted of text messages that reminded people to vote. Other scientific researches also discuss the effect of reminder messages. In recent studies (Harrison, Henderson, Alderdice, & Quigley, 2019; Vaughn et al., 2018) it was suggested that providing reminders to participants has a positive effect on response rate to a survey, especially when it is likely that the participant will have time at the moment of the reminder. This is in line with a research of Smith et al. (2019), where it was shown that three waves of reminder messages more than doubled the odds of an individual responding to a survey compared to when no reminder message was sent.

4.2.3 Personalization

In addition, a recent study showed that surveys that are personalized and addressed to a named individual result in a higher response rate compared to surveys that were addressed to 'Current resident' (Smith et al., 2019). This result is in line with a previous research, where it was found that the inclusion of names on health surveys increased the response rate by 20% (Scott & Edwards, 2006). Moreover, later it was found that surveys that were addressed to named individuals increased the effectiveness of reminder messages on response rate (Sahlqvist et al., 2011). However, Smith et al. (2019) do emphasize the risk of nonresponse due to privacy concerns of participants.

4.2.4 Unique perspective statements

Furthermore, Vaughn et al. (2018) suggest that nonresponse can be caused by 'the bystander effect', which is the belief that someone else will act, resulting in the potential participant not being motivated to act themselves (Darley & Latane, 1968). To counter the bystander effect, in the participation invitation, the possible participants were shown a message that stated the importance of the participant's unique perspective. This, in combination with other nudging interventions resulted in a response rate of 100% (Vaughn et al., 2018).

4.2.5 Altruistic and egotistic text appeal

Pedersen & Nielsen (2016) investigated with their study the effect of text strategies appealing to one's altruistic or one's egotistic motivation. In this study, they tested the effects of different motivation incentives, namely monetary incentives and text appeal incentives. Participants were exposed to texts that either emphasized the public benefit of participation in a survey, or emphasized that an individual was specifically selected among others, catering towards their own, egotistic motivation.

A positive effect was found for statements that appealed to someone's altruistic motivation, by emphasizing the public benefit of participating in the survey. However, in line with previous studies where results are mixed between positive effects (Houston & Nevin, 1977; Kropf & Blair, 2005; Cavusgil & Elvey-Kirk, 1998) and no effects (Dillman, Singer, Clark, & Treat, 1996), the positive effect of texts appealing to altruistic motivation was not statistically significant in this study.

On the other hand, the egotistic text appeal, aimed at the motivation originating from someone's "need for approval" did have a statistically significant positive effect on participation rate (Pedersen & Nielsen, 2016).

4.2.6 Goal setting and inter-group comparisons

To test how to increase human motivational behavior to act in the group's interest, Korn et al. (2018) designed a study that tested the effect of rewarding goal-attainment and inter-group comparisons. It was found that rewarding goal-attainment had a significant positive effect, which is in line with previous research. According to Locke & Latham (2002), goals are able to transform motivation into volition by directing attention and action, creating persistence and increasing effort toward a certain behavior. Furthermore, a meta-analysis found that setting group goals is an effective way of changing behavior (Epton, Currie, & Armitage, 2017). Additionally, multiple studies have found that coordination and cooperation are stimulated by goal-setting strategies (Dufwenberg, Gächter, & Hennig-Schmidt, 2011; Ellingsen, Johannesson, Mollerstrom, & Munkhammar, 2012; Zhong, Loewenstein, & Murnighan, 2007). One suggested key determinant regarding the attainment of goals is the monitoring of progression (Harkin et al., 2016), as this creates a feedback-loop with which an individual is able to detect a discrepancy between the current state and the target state. Visual feedback once a goal has been reached serves as a symbolic reward for both individuals as well as groups. Recent studies have shown that non-monetary, symbolic rewards can increase goal-attainment by inducing behavior that benefit the public good. Additionally, it was found that these cooperative behaviors persist over time (Gallus, 2017; Kube, Maréchal, & Puppe, 2012). To even further increase the effectiveness of visual feedback, gamification elements such as pictures can be used (Oprescu, Jones, & Katsikitis, 2014).

In addition, cooperative group behavior can be stimulated by comparing one's own ingroup with an outgroup (Böhm & Rockenbach, 2013). This 'inter-group comparison – intra-group cooperation' hypothesis is based upon the social identity theory and self-categorization theory.

The study of Korn et al. (2018) did find a positive effect of inter-group comparisons, however, this effect was not statistically significant.

Concluding, while rewarding goal-attainment is an effective method of increasing cooperative behavior that persists over time, the impact of this intervention can decrease over time, therefore it is recommended to avoid overusing this specific strategy (Korn et al., 2018).

4.2.7 Survey length

Finally, numerous studies have researched the influence of the length of a survey on the response rate to said survey. The overall consensus is that the length of a survey negatively influences the response rate. The longer the survey, the lower the response rate. According to Sharp & Frankel (1983) this is because the length of a survey is one of the aspects that increases the respondent burden. The respondent burden is the required time and effort to participate in a survey. This can be influenced by the complexity of the questions, or the required information to fill in the questions (think of information about taxes or salary). The higher the respondent burden, the lower the response rate. Survey length has a positive relation with respondent burden. Meaning that reducing the length of a survey can positively influence the response rate (Edwards et al., 2009; Nakash, Hutton, Jørstad-Stein, Gates, & Lamb, 2006). However increasing the response rate to a survey is not as plain and simple as reducing the survey length. An example of this is the study of Smith et al. (2019) where they found no effect for survey length on response rate. Another example is the study of Subar et al. (2001), where an extensive survey of 36 pages received the same amount of responses as a previous executed survey of 16 pages, and which took 30 minutes less to complete.

4.3 Nudge feasibility

Numerous promising nudges have been mentioned above, however, it is not feasible to test all nudges within this study. It is therefore required to choose which interventions will be tested. As this study is on behalf of Company X and has a limited available time-frame, the decision of which nudges will be tested will not purely be based on potential results, but rather on feasibility of execution within Company X's criteria and the available time-frame. In the following paragraphs, a short assessment will be provide for each of the previously mentioned nudges. Based on these assessments, it will be decided which nudge(s) are feasible for further testing and will therefore be looked further into.

Monetary incentives were shown to have a significant positive effect on response rate, which has been supported by multiple social and psychological theories. Nevertheless, this intervention is not feasible within this study as Company X does not approve of this method. As Company X wishes to conduct an employee satisfaction survey on a more regular basis, the high costs associated with each survey would be unjustifiable. Therefore, this nudge is seen as unfit for further research.

Rewarding goal attainment and inter-group comparisons have also been shown to be very promising. However, due to insufficient time, this intervention cannot be tested, as it requires rather complex technical implementations to allow each employee to see their group's progress. In consultation with Company X, successfully implementing this system is deemed to be too time consuming to be a viable option for this study.

Further, personalizing participation invites and specifically sending reminders to specific participants have shown to be very effective methods of increasing response rate. However, these interventions can impact the participant's feeling of privacy and therefore could influence their results. In consultation with Company X, these interventions are therefore seen as undesirable for actual implementation and will therefore not be further tested in this study.

On the other hand, persuasive texts that are aimed at appealing to an individual's altruistic (group-interested) or egotistic (self-interested) motivation and texts that emphasize each individuals unique perspective are also shown to be effective methods of increasing response rate. Additionally, these interventions do not compromise the participant's privacy and have no added associated financial costs. Therefore, these interventions are deemed feasible for this study.

Finally, survey length also does not compromise privacy and has no associated financial costs. However, the effectiveness of survey length is unclear. Nevertheless, because Company X is interested in executing employee satisfaction surveys on a more regular basis, it is interested in the effect of survey length on response rate. Survey length is therefore another feasible nudge for this study.

These assessments provide an answer to the second sub-question. Making use of persuasive texts and reducing the length of the survey are nudges that are viable for testing and possible implementation within the environment and requirements of Company X.

The following sections will dive deeper into the existing knowledge and theory of the two viable nudges for this study.

4.4 Further investigation

Based on the assessments of previously mentioned nudges, a decision has been made regarding the nudges that will be chosen for further testing. It has been concluded that this study will look further into and test two different categories of nudges. The first nudge is the use of persuasive texts that are aimed at emphasizing either the personal benefit, or the group benefit of participation. The second nudge that will be looked further into is reduced survey length.

As previous sections were mere a short introduction and overview of promising nudges, a more detailed investigation of the two chose nudges must be done. The following paragraphs will, in more detail, shine light on the existing theory and knowledge regarding the aforementioned chosen nudges, based on which a test design of these nudges can be created and proposed. The detailed descriptions of the research design will be discussed in the corresponding method sections.

4.4.1 Persuasive texts

As has been mentioned before, one of the effects that will be tested in this study is that of texts that emphasize either one's personal benefits or the group's benefits that are associated with participation in the survey. The results should indicate which type of persuasion, personal benefits (self-interest) or group benefits (group-interest), results in a higher response rate. In the upcoming sections, this nudge will be discussed in more detail, and a set of criteria will be provided which the persuasive texts that will be used for further testing have to meet.

4.4.1.1 Existing knowledge of the effect of persuasive texts

Previously, a numerous amount of research has been done about the interaction between an individual's self-interest and the interest of the common good. A prime example of a research like this is the research of Betsch, Böhm & Korn (2013). This study researched the effects of texts emphasizing one's own benefit versus society's benefit of herd immunity due to vaccination, on vaccine uptake. The social benefit of herd immunity is that society at large is protected against a disease, even vulnerable people who are unable to be vaccinated themselves. The individual benefit of herd immunity is that an individual is protected from a disease, even though he or she is not vaccinated. In the case of herd immunity, the action that corresponds to personal benefits conflicts with the action that corresponds with society's benefit. Herd immunity enables an individual to not

vaccinate themselves, avoiding the associated costs (time and money) and risks (side-effects or illness), while still being able to benefit from the herd immunity. This conflicts with society's interest, as herd immunity relies on as much people as possible being vaccinated in order to work (Betsch et al., 2013). This is a reoccurring theme in scientific studies. A lot of studies make use of social dilemmas, scenarios in which the personal interest of participants conflict with the common good (Attari, Krantz, & Weber, 2014; Dawes, 1980; Ellingsen et al., 2012; Kollock, 1998). In these studies, the researchers are interested in nudges that increase the likeliness of an individual choosing the group's benefit over their personal benefit.

This is different from the scenario this study aims to investigate. This study is interested in knowing which type of persuasion (either emphasizing personal-, or group-benefit) results in the most cooperative behavior, which is participation in the survey. As has been mentioned before, participating in a survey has costs associated with it, mainly in the form of time spend on filling in the survey. The personal benefit of not having to spend time filling in the survey is weight-out against the benefits of filling in the survey, in the decision of whether to participate or not (Betsch et al., 2013). Participating in an employee satisfaction survey can benefit the individual who is participating, as well as benefit the entire workforce. By emphasizing either that personal benefit, or the group benefit, it will be shown which type of persuasion has a stronger impact on willingness to participate.

Despite most studies focusing on social dilemma's, some studies did compare the effects of self-interest based motivation and group-interest based motivation. In a recent study, Schofield, Loewenstein, Kopsic, & Volpp (2015) investigated the effectiveness of different incentives on participation in mental exercises. The difference between individualistic participation (atomistic), partnered participation (altruistic), and competitive two-versus-two participation (competitive) were tested. However, the main incentive that was being tested was a monetary incentive, which size was based on the amount of completed exercises. The main results showed that all three groups completed approximately twice as much exercises as the control-group, which were all individuals who received no monetary incentive. Additionally, it was shown that, as the study progressed, participation of all groups declined over time. However, the altruistic and the competitive groups, which both are formed of multiple people and therefore include a social motivational factor, still completed twice as much exercises as the control- and atomistic group. This suggests that social motivation results in more sustained participation (Schofield et al., 2015). However, as this study included the use of monetary incentives, it remains unclear what the exact impacts of individual motivation versus group motivation actually are, when they are solely tested (Schofield et al., 2015).

This shows that, although numerous scientific studies regarding self-interest versus group interest have been executed, it remains relevant to execute this particular study, as the scenario and scope of this study have not been widely researched in a similar manner before.

To test the effects of texts that emphasize self-interest or group-interest, it is important that these texts are properly emphasizing one of the two types of interest. It is therefore important that the persuasive texts that will be used in this study are suited to clearly emphasize either purely self-interest or purely group-interest, without invoking the other, opposite, type of persuasion.

Earlier, the study of Pedersen & Nielsen (2016) has been discussed. In said study, they tested the effect of a persuasive text that appealed to one's altruistic, or group-interested, motivation. However, as their study did not use a similar scenario and variables, and, moreover, had mixed results, their texts cannot simply be re-used (with slight changes) in this study. Furthermore, the texts that will be used in this study must also be approved by Company X, as their employees will be exposed to these persuasive texts. Therefore, it is important that a clear set of criteria, based on

scientific literature, is created. This set of criteria can be used to design the persuasive texts that are approved by Company X and, according to scientific literature, should be suited to one of the two types of persuasion that will be used in this study. In order to create this set of criteria, the article of Bar-Tal (1986) is consulted. In his article he discusses the definition, utility and operationalization of group-interested motivation. After giving a clear overview of previous work on the definition and use of altruistic motivation, he discusses five selected points of criteria that have to be met in order to count as altruistic behavior. Based on these criteria, behavior is group-interested only if (1) another person benefits from it, (2) if it is performed voluntarily and (3) intentionally, (4) if said benefit is the sole goal, and (5) if it is performed without the expectation of additional external rewards (Bar-Tal, 1986). Therefore, group-interested behavior is defined as "voluntary, intentional helping acts which are done for the welfare of the person in need without expectation of external rewards in return" (Bar-Tal, 1986, p. 6) The persuasive texts that will be used to emphasize the group-interest of participation will have to emphasize the aspects that are set in the criteria above.

Now that it is clear what altruistic behavior and motivation is, a clear distinction should be made as to what the opposite, namely egotistic, self-interested motivation is. Inspired by the earlier mentioned criteria of Bar-Tal (1986), the persuasive texts that will be used to emphasize self-interest of participation will have to emphasize the following set of criteria of self-interested behavior. Behavior is self-interested if (1) it benefits the person themselves, (2) if it is performed voluntarily and (3) intentionally, and (4) if the personal benefit is the sole goal.

To conclude, based on the theoretical framework, this study will test the effect that different types of persuasive texts have on the response rate to an employee satisfaction survey. These persuasive texts will have to meet a set of criteria that have been created based on scientific literature, in order to successfully emphasize either the personal benefit of participation, or the group benefit of participation.

4.4.2. Survey length

As was concluded in previous parts of the theoretical framework, the second nudge that will be tested in this study is reducing the length of the survey. The effect of a reduced survey length on response rate will be tested. In the upcoming sections, existing theory of this nudge will be discussed in more detail. Finally, based on this further discussion, an initial plan of how this nudge will be implemented in this study will be described.

4.4.2.1 Existing knowledge of the effect of survey length

Long and extensive surveys are associated with lower response rates because a high respondent burden, the required time and effort of participating in a survey, is associated with low response rates (Sharp & Frankel, 1983). A long survey requires more time and effort and therefore has a high(er) respondent burden compared to shorter surveys. A long survey can result in participants not completely finishing a survey, if they even start at all. The indication that a survey will be extensive can scare people off before even getting started. Research on respondent burden has mostly focused on survey length, and, in general, it has been found that, for previously mentioned reasons, longer surveys reduce response (Porter, Whitcomb, & Weitzer, 2004).

However, despite the fact that longer surveys receive less responses, it is not simply recommended to reduce the length of a survey as much as possible, as a lot of researches have shown mixed or insignificant results of the effect of survey length (Harrison et al., 2019; Robb, Gatting, & Wardle, 2017; Smith et al., 2019). In the study of Harrison et al. (2019), no significant difference was found between the response rates of surveys that were characterized as 'long' (28.7%) and surveys that were characterized as 'short' (33.1%). This study did not solely test the effects of a reduced survey

length, but added other methods aimed at increasing response rates. Sending pre-notification cards, adjusting the design and content of the survey to better fit their population, sending reminders, and adding QR-codes on the surveys to enable easier online access were all methods that were used in the second shorter survey. Despite their efforts, the difference in response rate between the two surveys was deemed as insignificant. It must be noted that the authors discussed the possibility that the main reason their efforts did not work was due to the 'short' survey still being too long. Whereas the long survey contained 20 pages, the short survey still contained 16 pages.

In addition, the study of Robb et al. (2017) tested the effect of survey length in combination with monetary incentives. The long survey, consisting of 7 pages, received a response rate of 40.2%. The short survey, consisting of 4 pages, received a response rate of 41.8%. This difference was found to be insignificant. Similar to previously mentioned study, the authors argued that the reason for this insignificant difference was possibly because their 'short' survey did not differ enough from the 'long' survey to show significant responses. Moreover, surveys serve the purpose of providing feedback from participants regarding the topic they are designed to research. Heavily reducing the number of questions can impact the effectiveness of providing complete information. The balance of the number of questions versus the ability of providing complete information should therefore always be carefully considered.

Despite numerous studies showing mixed or insignificant positive results, it is still relevant for this study to test the effect of survey length reduction. Studies that have researched the effects of survey length on response rate have mainly used one 'short' survey, and one 'long' survey. For a large segment of these studies, the short surveys still could be considered quite extensive, as the shortest 'short' survey contained, four sheets of A4 paper. One example of these studies is the study of (Robb et al., 2017), where the short version consisted of four A4 pages, and the long version of seven A4 pages. This resulted in a slight, yet insignificant, positive effect of survey length reduction.

Because existing scientific studies mainly made use of short survey that, according to the authors, could be considered too long. It remains interesting what the effect of reduced survey length on response rates are if a truly shorter survey is used. This is in line with the interest of Company X, as they have stated their interest in receiving employee feedback more regularly. Therefore, they are interested in using survey types that are less demanding for their employees in terms of time and effort, enabling Company X to send out those surveys more regularly. Therefore, this study will make use of a 'short' and 'long' version that possibly both can be considered as short, compared to surveys that have been used in previous studies.

As have been mentioned before, reducing the survey length, in other words reducing the amount of questions, can negatively impact the effective of the survey to research the topics it was designed for. This is also a concern of Company X. Therefore, in consultation with Company X, a very interesting alternative method of reducing survey length will be tested in this study. Instead of sending out one survey with a reduced amount of questions, several shorter surveys which together make up one large survey, will be send out in sequencing parts. The exact implementation of this nudge will be discussed in finer detail in the method section of this report.

4.4.3 Summary

To conclude, this study will make use of two types of survey distribution. The first method is the traditional way. Here, all questions are bundled together into one long survey. From now on, this survey type will be referred to as the 'long' survey type. The second surveying method is the alternative method, designed based on the theoretical framework and in consultation with Company X. In this method, the complete set of questions that was mentioned earlier is split into separate

shorter parts which together make up the complete survey. These parts will be send out in sequence of one another. This survey type will be referred to as the 'short' survey type.

In addition, this study will make use of three groups for the type of textual persuasion. One group that is exposed to texts that emphasize group-benefit, one group that is exposed to texts that emphasize self-benefit, and one group that is not exposed to additional persuasive texts.

In figure 1, a conceptual research model is provided.

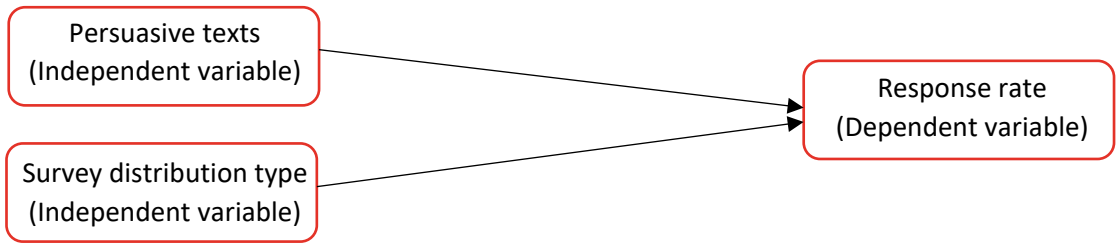

Figure 1. Conceptual research model

5. Method

The goal of this field experiment is to answer the sub-question: *"What is the effect of the use of textual persuasion strategies and different types of survey distribution on the response rate of an employee satisfaction survey?"*

Because the aim of this study is to find the effect of aforementioned nudges on the response rate to a quantitative employee research, it is only logical that these nudges were tested by the use of a quantitative study. This decision was made in consultation with Company X. The quantitative method that was used to test these variables was an employee satisfaction survey. In line with recent events, this employee satisfaction survey was about regular safety awareness and the COVID-19 measures. This method has been reviewed and approved by the BMS Ethics Committee. The employee satisfaction survey was performed in the online environment of the University of Twente within the program Qualtrics, an online questionnaire tool. The survey was distributed to all employees from nine departments of Company X, resulting in a total of 1421 employees.

As has been stated in the theoretical framework, for textual persuasion strategies, two types of persuasion were used: persuasion based on emphasizing the benefit of the colleagues if one were to decide to participate in the survey (*group-interest*), and persuasion based on emphasizing the benefit of the individual themselves if one were to decide to participate in the survey (*self-interest*). In the theoretical framework of this report it has been discussed how these two forms of persuasion have been shown to be effective at increasing response rate. In addition, one neutral group was added (*control*). This allowed for comparisons to be made between the results of the two persuasion types and the results of a neutral, regular, method of executing an employee satisfaction survey.

Furthermore, for the other independent variable, type of survey distribution, two different types were used. One type is the traditional method of distributing a survey: all questions provided to the employees at once, in one long survey (*long*). The other type of distribution was by splitting said survey up into six separate shorter parts, which were provided to the employees sequentially (*short*). This method of distributing the survey was chosen based on the theoretical framework of this report, in which it was discussed that it has been shown that shorter surveys result in higher response rates.

This means that in this study, a 3x2 design was used. Therefore, the participants (employees of Company X) were, unknowingly, divided into six groups which each were exposed to different types of persuasion strategies and/or survey distributions. Further specifications about the implementation of the textual persuasion strategies and the different survey distribution types will be provided in the segments 5.3.1 Textual persuasion strategies and 5.3.2 Survey distribution types.

5.1 Participants

The employee satisfaction survey was distributed to all employees from nine separate departments of Company X. There are no further inclusion or exclusion criteria. The total amount of employees that were involved in this study therefore is 1421. Note that, since this study is about the response rate to a survey, employees who did not respond are also seen as participants in this study. It is therefore not possible to provide the demographic data of all the participants in this study, only those who participated in the survey have recorded their demographic data. Because in this study the demographics of the respondents is related to the results section, and does not involve all participants, the descriptive statistics of the participants cannot be provided in this section of the report, but the descriptive statistics of the respondents will be provided in the results section.

5.2 Instruments

The employee satisfaction survey was executed in the online program Qualtrics. Within Qualtrics, the online environment of the University of Twente was used. It was important to Company X that the employees felt their privacy was assured and that Company X themselves did not have access to their individually given answers. Therefore, the online environment of the University of Twente was chosen as this conveyed the message that the execution of the research was not handled by Company X themselves but that it was handled by an outsider. The invitations for the employee satisfaction surveys were sent out using e-mail. Company X fulfilled this task, as they had rightful access to their employees' e-mail addresses. This also meant that, in the eyes of the employees, the e-mails with the invitation link came from a trusted source, namely their employer.

The employee satisfaction survey consisted of 41 questions, of which 4 were demographic questions. The demographic questions were related to the employee's age, how long they were employed by Company X, what type of personnel they were, and to which department they belonged. The demographic questions and their possible answers are shown in table 1.

Table 1. Demographic questions and answers in employee satisfaction survey

Demographic question	Answer options
Age (in years)	- <25 - 25-40 - 40-55 - 55>
Employment time (in years)	- 0-1 - 1-3 - 3-10 - 10-20 - 20>
'I mainly work:'	- Outside (Executing staff) - Inside (Non-executing staff)
Department	- Projects (Including Short Line) - Maintenance - Equipment - Systems - Molhoek-CCT - Asset Management - Infra-techniques - (Netherlands) Staff

The 37 other, substantive questions are not relevant for the results of this study. However, seven constructs were created from these questions. These constructs will later be mentioned and therefore they will be provided here. The seven question constructs are: Corona measures, External employees, Health, Instructions, notifications, personal safety, overall safety.

In the following section, the method in which the different types of persuasion and different types of distribution have been implemented will be discussed.

5.3 Manipulations

5.3.1 Textual persuasion strategies (Persuasion type)

The first nudge that was tested in this study is the use textual persuasion strategies. The implementation of this nudge will be discussed below.

Employees of Company X were sent an e-mail that provided them with a link to the online environment in which the survey was conducted. Besides serving as a way to invite people to participate and inform them about the research, the e-mail also served as a way to implement the different textual persuasion types. As mentioned before in this method section, based on the theoretical framework, two types of persuasive texts were used. This meant that there were three groups: control, group-interest, and self-interest. The control group was added as this enabled the assessment of the effects of the other two types compared to a neutral baseline, and we are also interested in the results from this neutral group. The implementation of these persuasive texts was done in two ways. The first implementation of these three different persuasion groups was done by altering the subject of the e-mails. The second implementation was done by altering the content of the e-mails.

The creation of the persuasive texts was done based on the criteria that have been established in the theoretical framework of this report, and in consultation with Company X.

5.3.1.1 Persuasive text implementation 1: E-mail subjects

The control group received a neutral, standard e-mail subject that informed them about the nature of the survey. The 'group-interest' group received the same, neutral, e-mail subject. In addition, however, they received an additional persuasive text in front of the neutral subject title. This additional text emphasized the benefit for the group if the individual, who received the e-mail, participated in the survey. In this case, 'the group' are the colleagues of the individual. The implementation for the 'self-interest' group is similar to the implementation of the 'group-interest' group. The only difference is that the added persuasive text in front of the neutral title was now emphasizing the personal benefit of participating in the survey, instead of the benefit of the colleagues. The full e-mail subjects for each of the groups can be viewed in table 2.

Table 2. E-mail subject headings per persuasion strategy

Persuasion type	E-mail subject
Control	Onderzoek naar veiligheidsbewustzijn en corona-maatregelen 'Research into safety awareness and corona measures'
Group-interest	Help je collega's! - Onderzoek naar veiligheidsbewustzijn en corona-maatregelen 'Help your colleagues! - Research into safety awareness and corona measures'
Self-interest	Jouw mening telt! - Onderzoek naar veiligheidsbewustzijn en corona-maatregelen 'Your opinion matters! - Research into safety awareness and corona measures'

5.3.1.2 Persuasive text implementation 2: E-mail and informed consent content

Subsequently, the second implementation of persuasive texts was done by altering the content of the e-mails. Again, the control group received a neutral, standard text which informed them about the nature of the survey, and the way in which it would be executed. The content of the e-mail for the people in the 'group-interest' group contained the addition of two sentences that emphasized the gained benefit of the group if the individual was to participate in the survey. This, again, is very

similar to the implementation for the 'self-interest' group. This group received the neutral e-mail with the addition of a text that emphasized the personal benefit of participation in the survey. The additional texts that were used for the group- or self-interested groups can be viewed in table 3. The complete e-mails that have been sent to each group can be seen in appendix A.

Table 3. Additional persuasive texts per persuasion strategy (used in e-mail and informed consent)

Persuasion type	Additional persuasive text
Control	-
Group-interest	Door jouw mening te geven krijgt Company X een beter beeld van hoe we een nog veiligere en gezondere werkomgeving kunnen creëren. Daarmee help je jouw collega's! 'By giving your opinion, Company X gets a better idea of how we can create an even safer and healthier working environment. With that you are helping your colleagues!'
Self-interest	Door jouw unieke mening te geven krijgt Company X een beter beeld van hoe we voor jou een nog veiligere en gezondere werkomgeving kunnen creëren. 'By giving your unique opinion, Company X gets a better idea of how we can create an even safer and healthier working environment for you.'

In addition to altering the e-mails each group received, the informed consent each participant had to agree to also slightly differed per group, similarly to the way the e-mails differed per group. The control group was prompted with a neutral informed consent, informing them about the nature of the survey, the voluntariness of participation and the statement regarding the assurance of privacy. The group- and self-interested groups were prompted with the same informed consent with the addition of an additional text similar to the additional text that was used in the content of the e-mail corresponding to each group. These additional texts can be viewed in table 3. The complete informed consents can be seen in appendix A.

The survey itself did not contain any alterations between the three different persuasion type groups. The following section will discuss the implementation of the second nudge that was tested in this study, the different types in which the survey is distributed.

5.3.2 Survey distribution types (Distribution type)

The second nudge that was tested in this study was the use of a different method of distributing the survey. In the theoretical framework it was discussed that shorter surveys have been proven to increase response rate. Based on this knowledge, the use of several separate shorter surveys (*short*) instead using one long traditional survey (*long*) will be tested. For this nudge, the three groups that were formed based on the textual persuasion strategies, were now each divided into two groups again. This meant that for each of the three persuasion type groups, there was one 'short'-group, and one 'long'-group, resulting in a total six different groups (as can been seen in table 4). For all groups, the same survey was used. However, whereas all long-groups received all questions at once in one 'long' survey, the short-groups received the survey divided into parts, which were sequentially distributed every couple of days. The implementation of these two types of survey distributions will be more specifically discussed in the following sections. A clear visualization of the division of all the six groups can be seen in figure 2. From now on, 'short' will be used for those groups who receive six separate short parts of the survey in sequence, and 'long' will be used for those groups who receive all questions at once, in one long survey.

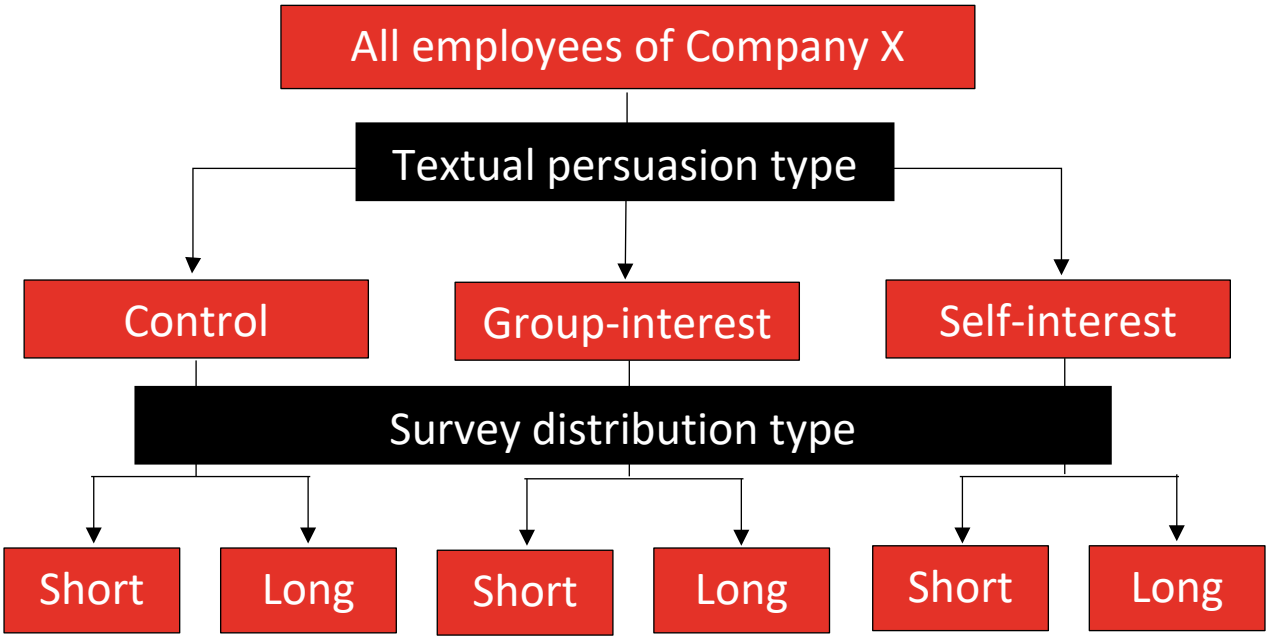

Figure 2. Visualization of distribution of employees over the six test groups

5.3.2.1 Survey distribution type implementation

The survey contained 41 questions, of which 37 are substantive questions and 4 are demographic questions. Employees who were in the long-group therefore received all 41 questions at once. They received one e-mail in which they were invited to participate in this long survey, for which they had two weeks and two days to complete.

The short-groups, however, received the same survey, divided over six separate shorter parts, each consisting of six substantive questions. The sixth and final part contained seven instead of six substantive questions in order to complete all 37 substantive questions.

Every two days, with exclusion of weekends, one of the six parts was made available for, and was distributed to, the employees who were in the short-groups. The employees in the short-groups were invited to participate by e-mail. This meant that every two days, they received a new e-mail in which they were invited to participate in the next part of the survey. Once a next part was distributed, the response window for the previous part was ended. This meant that after two weeks and two days, the participants in the short-group had received all six parts of the survey in sequence, and got at least two days to fill each one in. The employees who were in the long-group had the same amount of time to fill in the survey. For all participants, the overall response window started on a Monday and therefore ended on a Tuesday, two weeks later. A clear overview of the different types of survey distribution, including their start and end dates, can be seen in figure 3.

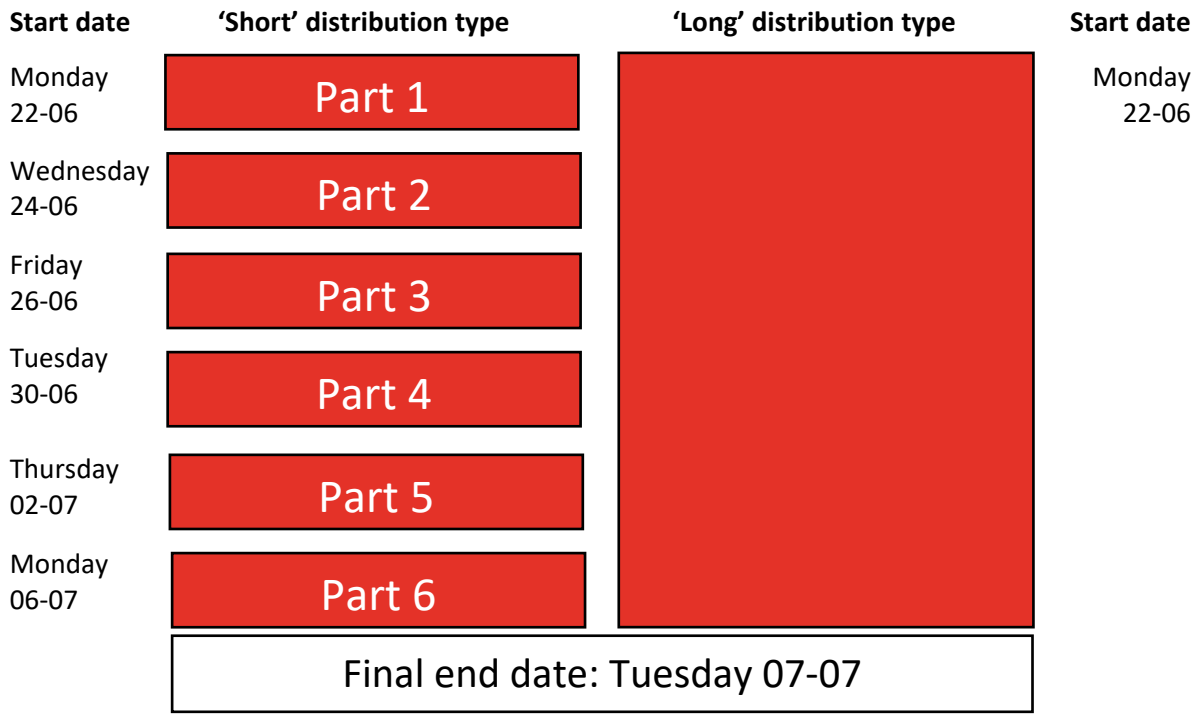

Figure 3. Visualization of the start and end dates of the short and long survey distribution types

As has been discussed in the theoretical framework of this report, the indication that a survey will be extensive and demanding can decrease response rate. Therefore, one of the aspects of survey length that is thought to have a positive effect on response rate is the employee's knowledge that a survey will not be very demanding. Therefore, the invite e-mails and the informed consent had indications of the time it would take to participate in the survey. Employees in the long-groups were made aware that participation would roughly take 12 minutes, and employees in the short-groups were made aware that participation would roughly take 2 minutes. Moreover, employees who were assigned to one of the short-groups, had an additional piece of text at the end of the subject of the invite e-mail they received. This piece of text indicated which part of the survey was sent to the employee. For example, the very first invite e-mail would state at the end of the subject '(Part 1)', the second one '(Part 2)', and so on. This indicated that more parts were to follow, without letting the participant know how many parts were left. This decision was made because having knowledge about how many parts are left is seen as a sort of digital finish line, and could therefore function as a motivational factor. As this study was designed to test the influence of the different type of survey distribution, and not of a goal-setting motivator, participants were left uninformed about the exact amount of survey parts.

Tracking the participants across the six parts on an individual level would require personal tracking. This can be done by collecting e-mail addresses or IP-addresses, or providing each participant with an unique personal code. The first two examples would affect the anonymity and therefore privacy of the employees. The unique code would not affect the privacy. However, as it would require each participant to fill in their code on every entry, meaning that the participants would have to store and remember their personal code, it would heavily increase the respondent burden. As has been discussed in the theoretical framework, a high respondent burden results in a lower amount of responses. Negatively affecting privacy, or heavily increasing respondent burden are not desirable. Therefore, it was not possible to track participants across all of the six parts of the survey. As a result, participants had to fill in the four demographic question every time they participated in a new part of

the survey. This meant that the short surveys that were presented to the short-group, contained 10 questions each, with exception from the last part which contained 11 questions.

5.4 Procedure

5.4.1 Division of employees into test groups

The employee satisfaction survey involved nine departments of Company X. All employees from each of these departments combined result in a total of 1421 employees, who were all included in the research. As the research had a 3x2 design, the entire population had to be divided into six groups. To do this, all list with the e-mails of all the employees from all departments was made. This extensive list was randomly scrambled. Then, the e-mail addresses on the list were divided into six separate mailing-lists, each corresponding to one of the test groups. This ensured that every one of the six test groups contained participants from all departments, creating groups that are as homogeneous as possible, while also being randomized. The division of employees was completely done by Company X. During the research, however, it was noticed that, on accident, Company X mismanaged this distribution of employees, which resulted in an uneven distribution across the six test groups. The distribution of employees in each test group can be seen in table 4.

Table 4. Distribution of employees over the six test groups

Test group	Amount of employees
Control – Short	237
Control – Long	237
Group-interest – Short	237
Group-interest – Long	237
Self-interest – Short	137
Self-interest - Long	336

5.4.2 Sending invite e-mails to the test groups

Company X was then provided a schedule which indicated what type of e-mail message each group had to receive at a given time. This was done according to the method that has been described in section 5.3.2.1 Survey distribution type implementation.

Company X then sent out those e-mails to each corresponding mailing-list. This way, employees could see that they were contacted by an official Company X e-mail address. This was deemed important because an e-mail that is sent from an unknown source and includes an unknown URL can be seen as suspicious and can therefore easily be discarded. In addition, because Company X was in control of the e-mail addresses and mailing lists, it was unknown to the researcher which participants were in which group, ensuring privacy. In return, as Company X was not in control of the execution of the survey, and where unable to look into the responses of each individual participant, the privacy of the employees was safeguarded in both ways.

5.4.3 Data collection

Once employees clicked on the link that was provided in the invite e-mails, they were directed to a web browser in which the online survey environment of the University of Twente, using Qualtrics, was loaded. Here, the employees were presented the informed consent form. Only once they agreed to participate in the survey were their responses recorded.

After the period in which employees could complete the survey ended, all responses, including those of employees who did not fully complete the survey, were recorded. The responses were exported into Excel documents and responses from all the surveys were merged into one data file.

Additionally, a separate data file was created in which only the response and mortality rates were collected. This was done out of personal preference, as it was easier for the researcher to handle the data and keep an overview this way. Further specifications about the data collection process will be discussed in the upcoming section.

As has been mentioned before, this study has divided the employees into six test groups, the division of which can be seen in table 4. For each of these six groups, a separate (set of) survey(s) was made.

There were three separate 'long' surveys. One for the control group, one for the group-interest group and one for the self-interest group. Because these three groups had to fill in one survey, the maximum amount of responses that could be received is the same amount as the sample size of that group.

For the 'short' survey variant however, there were 3x6 separate surveys. Six parts for the control group, six parts for the group-interest group and six parts for the self-interest group. Because these groups received six separate shorter surveys instead of one long one, the maximum amount of responses for each group that could be collected over all the six surveys, was six times the sample size of the groups. This will be more clearly presented in the result section of this report.

5.5 Analysis

Microsoft Excel and IBM SPSS Statistics 24 were used to process the collected data from all surveys. After the data files were successfully loaded into both programs, several statistical tests were executed in order to analyze the data and come to results.

First, the three questions that were negatively presented, were recoded so that the answers given to these questions could be used in comparison with the other, positively presented, questions.

Then, constructs were made out of the questions in the survey. The information about the answers and these overarching constructs is mainly relevant for Company X, and not directly relevant for this research, however, these constructs will be referred to later in this section. Therefore, the creation of these constructs is mentioned here.

Microsoft Excel was used to create a clear overview of the response rates per test group. In addition, a univariate analysis of variance (Unianova) was used to test the significance of the effects of persuasion type and survey distribution type on response rate. In addition, another Unianova was used to check whether the independent variables, persuasion type, and survey distribution type, had an influence on the answers given by the participants (more positive or negative). This is where the aforementioned constructs were used. To test whether the independent variables influenced the given answers, a set of sample questions was used. One question from all of the seven constructs was used in order to give a fair representation of the possible effect of the independent variables on the given answers. In addition, one question that did not belong to any construct was tested as well. This resulted in a sample of 8 questions, which were all tested with Unianova's. The questions belonging to a construct were chosen based on their reliability to represent said construct. The question that resulted in the lowest Cronbach's Alpha if it were deleted from its construct was used in this sample. The results from these tests will be presented in the next chapter.

6. Results

In the following results section, first the demographic data from all employees who participated in the survey will be provided. Note that this only shows the demographic data from those employees who participated in this survey, not from those who, unknowingly, participated in this study.

Secondly, the main results will be provided first. It must be noted that distinction in three types of response rates has been used in order to show the complete story of the results. In the results section, 'response to invite e-mail' refers to the amount of employees who responded to the invitation e-mail by clicking the link that was provided, regardless of actual participation. 'Participation rate' refers to the amount of employees who, after clicking on the link in the e-mail, actually agreed to participate in the survey, regardless of how many questions they completed. 'Survey completion' is the third distinction. This is the amount of questions that have been completed by employees who clicked on the link and agreed to participate. This is the most important response rate statistic because it tells us how many questions have actually been responded to.

Because 'survey completion' is the most important type of response statistic, it will be discussed first. Survey completion is largely based on the aforementioned statistics 'response to invite e-mail' and 'participation rate'. Therefore, after Survey completion has been discussed and tested for significance, the response to the invite e-mail and participation rate will be discussed in that order.

Finally, a short summary of the results will be provided which will provide an answer to the third sub-question: *"What is the effect of persuasive texts and short distribution type on the response rate of an online employee satisfaction survey?"*

6.1 Demographics

Below, in table 5, an overview of the demographics of all responses is given. Due to the design of this study, these demographics are not the whole participant population. Employees who did not respond to the survey are also, unknowingly, participants in this study. Therefore, it must be noted that the statistics in table 5 only refer to the responses given to the survey, not to the entire employee population. Furthermore, as not all responses included answers to the demographic questions, the total amount that is shown in the table below is not a representable indication of the response rate to the surveys.

Table 5. Demographic data of all responses

Demographic category	Demographic	Frequency	Valid percent
Age group (in years)	<25	13	1.5
	25-40	163	18.8
	40-55	407	47.1
	55>	282	32.6
Employment time (in years)	<1	14	1.6
	1-3	90	10.4
	3-10	125	14.5
	10-20	275	31.8
	20>	361	41.7
Work environment	Outside	321	37.1
	Inside	544	62.9
Department	Systems	12	1.4
	Molhoek-CCT	14	1.6
	(Netherlands) Staff	30	3.5
	Equipment	57	6.6
	Infra-techniques	61	7.1
	Short Line	70	8.1
	Asset Management	121	14.0
	Projects	241	27.9
	Maintenance	259	29.9

6.2 Survey completion

As has been mentioned before, survey completion refers to the total amount of questions that have been completed by each test group. In table 6, an overview of the total and mean amount of completed questions is given. 'Net mean' refers to the mean amount of questions that have been filled in by all employees from that test group (total sample size). This also includes those who did not participate in the survey, or who did not respond to the invite e-mails. 'Gross mean' refers to the mean amount of questions that have been completed by employees who agreed to participate (participants adjusted for waves).

Figure 4 displays the net and gross mean amount of completed questions for each of the test groups in a clear overview.

Table 6. Rate of survey completion (in questions) per test group

Test group	Sample size	Waves of surveys	Total sample size	Absolute participation	Participants adjusted for waves	Total completed questions	Net mean	Gross mean
Self-benefit – Long	336	1	336	303	132	4080	12.14	30.91
Self-benefit – Short	137	6	822	78	26.83	888	6.48	33.09
Group-benefit – Long	237	1	237	238	79	2340	9.87	29.62
Group-benefit – Short	237	6	1422	79	39.67	1266	5.34	31.92
Control – Long	237	1	237	161	78	2496	10.53	32.00
Control – Short	237	6	1422	132	50.5	1668	7.04	33.03

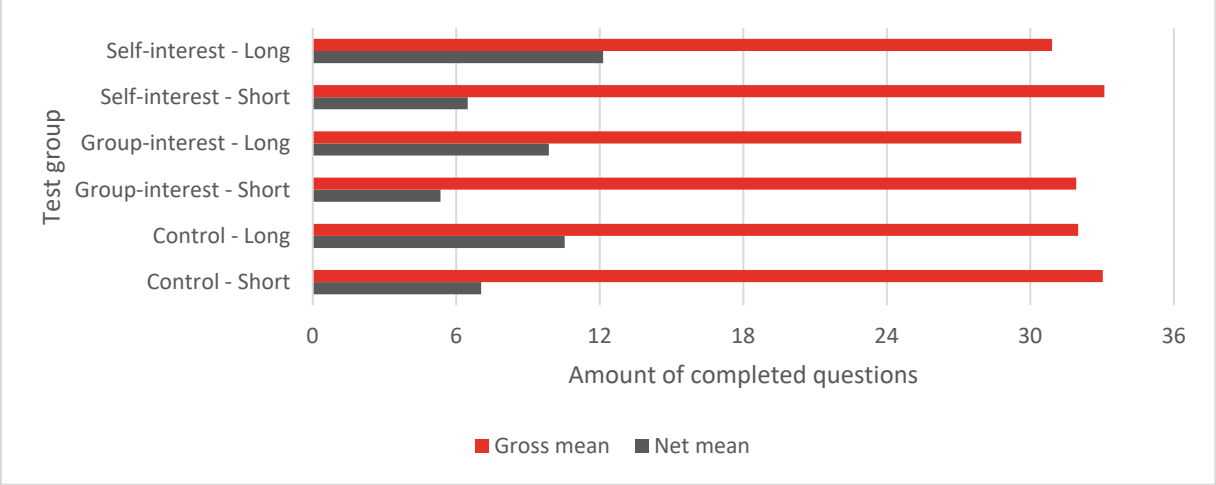

Figure 4. Rate of survey completion (in questions) per test group

It can be seen that those groups who received the short survey type have a slightly higher gross mean of completed questions. This indicates that when people do participate in the short survey type, they complete, relatively, more questions than people who participate in the long survey. However, when looking at the net mean amount of completed questions, it can be seen that those groups who received the long survey type outperformed the groups with the short survey type. This is the result of the higher response to invite e-mail and participation rates of employees in the groups with long survey types, which will be discussed further in the corresponding result sections.

6.2.1 Significance testing

As can be seen in the previous section, the groups who received the long survey type had a higher net mean of completed questions. This gave a clear initial insight in the results of this test. However, the tables and figures above cannot provide assurance that the differences that are observed are of significance. Therefore, the observed effects of persuasion type and survey distribution type on survey completion are also tested on significance using univariate analysis of variance in SPSS. Table 7 below shows the Levene's test of equality of error variances, and table 8 shows the results from the significance test.

Table 7. Levene's Test of Equality of Error Varianes

F	df1	df2	Sig.
48.269	5	4470	.000

a. Design: Intercept + Persuasion + Distribution + Persuasion * Distribution

Table 7, in other words Levene's test, tests the assumption of equality of variances for a variable calculated for two or more groups. Since the *p*-value of this test is less that 0,05, the differences in sample variances are not likely to have occurred based on random sampling from a population with equal variances. Therefore, the null hypothesis of equal variances is rejected and it is concluded there is a difference between the variances in the population.

Although one of the assumptions is violated, as a two-way Anova is an analysis that is fairly robust to a violation of this assumption, the significance testing is continued. However, because of this violation, in order to reduce the risk of making a Type-I error, instead of using a 0,05 significant *p*-value, a 0,001 significant *p*-value will be used.

Table 8. Test of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	137909.586[a]	5	27581.917	17.892	.000
Intercept	1452694.916	1	1452694.916	942.350	.000
Persuasion	10122.466	2	5061.233	3.283	.038
Distribution	102960.078	1	102960.078	66.789	.000
Persuasion * Distribution	3995.457	2	1997.729	1.296	.274
Error	6890798.090	4470	1541.566		
Total	8777222.222	4476			
Corrected Total	7028707.676	4475			

Table 8 shows the tests of between-subjects effects. Because in this study a significant *p*-value of 0,001 is used, we can conclude that there is indeed a significant main effect of survey distribution type on survey completion, $F(1, 4470) = 66{,}79$; $p < {,}001$. Additionally, there is an insignificant effect of persuasion type on survey completion, $F(2, 4470) = 3{,}28$; $p = {,}038$. As the effect of persuasion type on survey completion in insignificant, post hoc tests are not executed.

6.3 Response to invite e-mail

Underneath this text, table 9 presents the 'click-rate' of the employees for each of the test groups. In other words, this shows how many employees followed the link that was provided in the invite e-mail and responded to the informed consent. Agreement to the informed consent, in other words, participation, is not required for this statistic. Additionally, figure 5 provides an overview of the data presented in table 9 in order to give a clearer overview of the results.

Table 9. Rate of response to the invite e-mails per test groups, regardless of participation

Test group	Sample size	Waves of surveys	Total sample size	Absolute response	Adjusted for waves	Response rate (%)
Self-benefit – Long	336	1	336	141	141	41.84
Self-benefit – Short	137	6	822	170	28.33	20.68
Group-benefit – Long	237	1	237	84	84	35.44
Group-benefit – Short	237	6	1422	258	43	18.14
Control – Long	237	1	237	91	91	38.40
Control – Short	237	6	1422	330	55	23.21

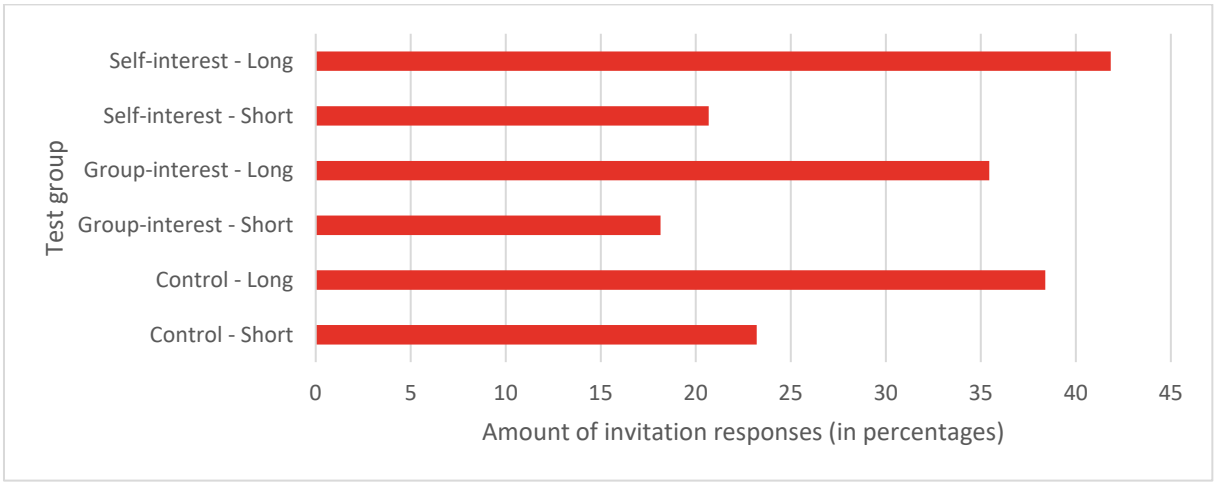

Figure 5. Rate of response to the invite e-mails per test group, regardless of participation

From table 9 and figure 5 above, it can be noted that there are clearly observable differences between the long survey type and the short survey type, indicating that the long survey type resulted in a higher response rate to the invite e-mails. In addition, differences can be seen between the different persuasion types as well, however, these differences are very subtle.

6.4 Participation rate

Below, table 10 provides the overall response rates for each of the six test groups. For a response to be counted in this table, the informed consent must have been agreed to by the employee. It is not required that the survey has been filled in. This table shows the total and mean amounts of participation. 'Net mean' refers to the amount of employees who agreed to participate in the survey relative to the total amount of employees in that test group (total sample size). 'Gross mean' refers to the amount of employees who agreed to participate in the survey, relative to the amount of employees in that test group who responded to the invite e-mail (absolute response to invite e-mail). Additionally, to provide a better view of the differences in participation rate for each test group, figure 6 had been added as well.

Table 10. Rate of participation in the survey per test group, regardless of survey completion

Test group	Sample size	Waves of surveys	Total sample size	Absolute response to invite e-mail	Absolute partici-pation	Participation adjusted for waves	Net mean	Gross mean
Self-benefit – Long	336	1	336	141	132	132	39.29	93.62
Self-benefit – Short	137	6	822	170	161	26.83	19.59	94.71
Group-benefit – Long	237	1	237	84	79	79	33.33	94.05
Group-benefit – Short	237	6	1422	258	238	39.67	16.74	92.25
Control – Long	237	1	237	91	78	78	32.91	85.71
Control – Short	237	6	1422	330	303	50.5	21.31	91.82

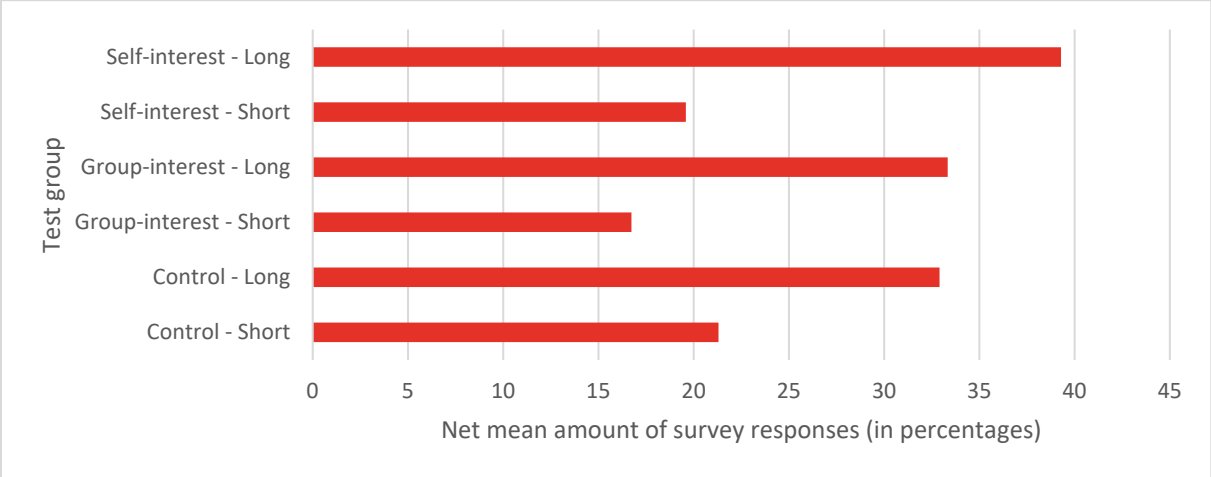

Figure 6. Rate of participation in the survey per test group, regardless of survey completion (Net mean)

Again, it can be noted that the long survey types resulted in a higher participation rate compared to the short survey types. Because it can be seen in table 9 and figure 5 that 'control – long' had a higher response to the invite e-mail than 'group-interest – long', it is interesting to see that the participation rate of the 'control – long' group is now lower than the 'group-interest – long' group. This means that, as can be seen in the most right column of table 10, the 'group-benefit – long' group has a higher gross mean participation rate, resulting in a higher net mean participation rate.

Another interesting result is about the decline in participation rate over the various parts of the short survey type. Figure 7 gives a clear visualization of the decline in participation. The results show that the second part of the survey already had lost roughly a third of the participants. Eventually, the sixth part shows a decline in participation rate of over 50%.

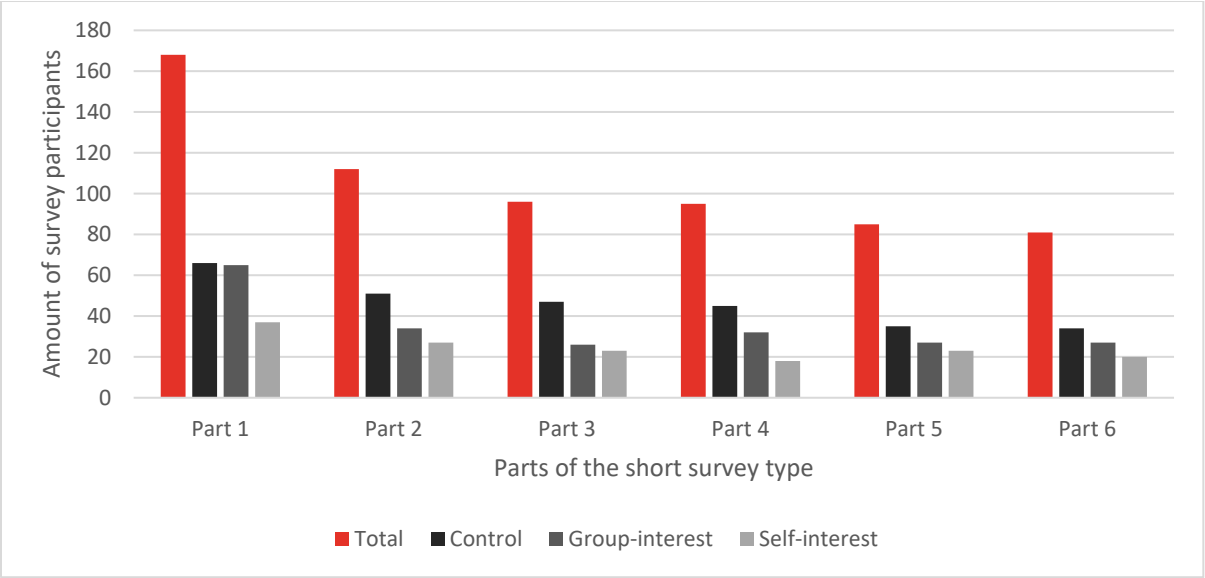

Figure 7. Participation rates for the sequencing parts of the short survey type

6.5 Employee influence

The aim of this study is to find out what method of executing an employee satisfaction survey receives the most completed surveys. With the results from this study, a recommendation can be made as to what that method is. However, it must be taken into account that there is a possibility that the method of executing a survey can have an influence on the answers employees give in said survey. To test whether this is the case, in other words, to test whether there are significant differences between the answers between each of the six test groups, several Unianova's were performed on a set of sample questions. How these questions were chosen is explained in the method section of this report.

The tables of the Levene's Tests and Tests of Between-Subjects Effects can be viewed in Appendix B through Q

Below, table 11 provides an overview of the *p*-values for the Levene's tests and the Tests of Between-Subjects Effects (ToBSE) for persuasion type and survey distribution type per sample question.

*Table 11. p-values for Levene's Test and ToBSE for persuasion type, survey distribution type, and persuasion type*survey distribution type, per sample question*

Question	Levene's Test *p*-value	ToBSE persuasion *p*-value	ToBSE survey distribution *p*-value	ToBSE persuasion*survey distribution *p*-value
Q36	0.080	0.160	0.382	0.628
Q22	0.368	0.416	0.894	0.344
Q33	0.196	0.521	0.822	0.245
Q35	0.329	0.054	0.695	0.357
Q10	0.525	0.519	0.730	0.774
Q17	0.712	0.634	0.973	0.880
Q28	0.190	0.485	0.962	0.653
Q38	0.780	0.867	0.318	0.331

As can be seen in table 11 the null hypothesis of the Levene's Tests can in all cases be rejected, as for all questions $p > 0,05$. In addition, based on the p-values of the Tests of Between-Subjects Effects, it can be concluded that there is no significant difference in the given answers based on persuasion type or survey distribution type. In other words, there is no significant effect of the independent variables persuasion type and survey distribution type on the given answers of the participants, because for all questions $p > 0,05$.

6.6 In sum

The results showed there was a significant difference in the survey completion rate between the long survey types and the short survey types. The groups that received the long survey types had a significant higher response rate compared to groups that received the short survey type.

Additionally, a slight difference was observable between the different types of textual persuasion types. Groups that were exposed to the persuasive texts that emphasize the personal benefit of participation in the survey showed a higher response rate compared to groups who received persuasive texts that emphasize the group benefit of participating in the survey, or received no persuasive texts whatsoever. Groups that were exposed to the persuasive texts that emphasized the group benefit showed the lowest response rates. However, the differences between these textual persuasion types were found to be insignificant.

Table 12 gives a plain and simple overview of the results per type of persuasion. Table 13 gives an overview of the results per type of survey distribution. These tables do not show all the statistics because these have been discussed to a larger extent in their previous corresponding sections. For a more detailed overview of these statistics, these previous sections must be consulted.

Table 12. Overview of the different response rates per persuasion type

Persuasion type	**Response rate to invite e-mail (%)**	**Net mean participation rate (%)**	**Net mean survey completion (in questions)**
Self-interest	35.80	33.56	10.50
Group-interest	26.79	25.04	7.61
Control	30.80	27.11	8.78

Table 13. Overview of the different response rates per survey distribution type

Survey distribution type	**Response rate to invite e-mail (%)**	**Net mean participation rate (%)**	**Net mean survey completion (in questions)**
Short survey type	20.68	19.15	6.26
Long survey type	39.01	35.68	11.01

7. Discussion

In this section, the findings, the validity of this research, as well as its limitations and implications will be discussed.

7.1 Validity of the research

This study aimed to investigate what method of conducting an employee satisfaction survey among employees of Company X could improve response rates. To test this, all employees of the relevant branches of Company X were sent an invitation to participate in an employee satisfaction survey. Therefore, it can be stated that the sample is representative of the entire population, because the entire population of Company X was involved. Based on this, it is expected that when this research would be repeated, similar results would arise. Therefore, the results of this research should be valid.

7.2 Findings

7.2.1 Survey distribution type

After the effects of the chosen nudges on response rate were tested, the results showed that shorter survey types did not receive higher response rates. This is not in line with existing scientific literature. In the theoretical framework it is explained that it is expected that shorter surveys result in higher response rates, as for shorter surveys the respondent burden is lower. In addition, multiple studies have also shown no effect of survey length on response rate. Yet, as in this study the short survey type resulted in a significantly lower response rate than its long counterparts, the results of this study are also not in line with those studies that found no effect.

A possible explanation for this result is that it was not clear to the employees that there were six parts that would be distributed over the timespan of two weeks. The participants only saw that they were requested to fill in a survey that would only take two minutes to complete. It is possible that because the low amount of time it would take to complete the survey, the survey was deemed unimportant. This is a seemingly unreasonable result, similar to a result of a study by Pedersen & Nielsen (2016). Here it was found that providing a small monetary incentive produced lower response rates than when no monetary incentive was given. It is expected that monetary incentives are better than no monetary incentives, but the results showed differently. In this study, it is expected that shorter is better, but, as was concluded in the study of Subar et al. (2001), shorter survey do not always lead to increased response rates.

This possible explanation is also supported by the fact that even the very first part of the short survey type received lower response rates than the long survey types. This cannot be because of fatigue resulting from being requested numerous times to fill in a survey. This was the very first part, yet despite being a sixth of the size, the responses were lower than the long survey types. However, if it was made clear that five more parts were to follow, in other words that the survey was more important than just a single two minute survey, it could be that responses were higher because this indication of how many parts were left functioned as another motivational factor in the form of a sort of finish line. This reasoning is supported by a study of Crawford, Couper, & Lamias (2001) where it was found that progress indicators positively influence response rates. Therefore, it was decided to not inform the employees how many parts were left, but simply inform them about which part they were currently asked to participate in. However, because this indication was placed in the end of the e-mail subject, it could be that, especially on smartphone screens, it was not read by a large amount of employees. In hindsight, this indication could have better been placed in the front of the e-mail subject.

7.2.2 Textual persuasion type

Additionally, an insignificant positive effect was found on the use of textual elements that emphasized personal benefit, especially when compared to when the benefit of the group was emphasized. This is not entirely in contrast with scientific research. In the theoretical framework it has been explained that in some cases motivation based on group benefit is more effective, and in other cases motivation based on personal benefit is more effective (Pedersen & Nielsen, 2016; Schofield et al., 2015).

Another possible explanation for the insignificant effect of persuasion type in this study is that the implementation of this variable was done too subtly. In the e-mail headers, the implementation of this variable was clearly visible. However, in the content of the e-mails, as well as in the informed consent, the textual elements were surrounded by a lot of other, yet necessary, pieces of text. It could be that a large part of the employees did not fully, if at all, read the textual elements, which resulted in those elements not having a significant effect.

7.3 Limitations

It must be acknowledged that this study had multiple limitations. Some of which are methodological, some of which are accidental.

First of all, the persuasive textual elements that were used in this study were created based upon existing scientific research. This, to a certain extent ensured that the texts would be effective at their task of persuasion. However, the effectiveness of these texts were not tested in a pre-test. Therefore, it is not known to which extent these persuasive texts were effective at persuasion.

Secondly, the implementation of the short type of survey limited the possibilities for detailed analysis to be done. Because privacy had to be guaranteed, individual participants could not be tracked across the various sequencing survey parts. This meant that each survey had to be viewed as a standalone survey, which made it more difficult to directly compare the results with the long type surveys.

In addition, some accidental events also limited this study. One, rather large, incident that could have impacted this study is the global pandemic of COVID-19. This pandemic has impacted everyone across the globe. The chaos and uncertainty resulting from the countermeasures that have been taken could have impacted the way in which people behave and respond. This study was executed in a time of a global pandemic and was therefore not executed in a controlled and representative environment.

Furthermore, as has been stated in the method section of this report, the distribution of employees over the six test groups was accidentally mismanaged. This resulted in some groups being significantly larger and significantly smaller than intended. This could have had an impact on the homogeneity of the groups and made comparing the results between these groups more complex.

7.4 Implications

The results from this study indicate the complexity of successfully implementing nudges to increase response rate. Despite not being able to show purely significant results, this study does add upon the existing knowledge about the effects of different types of persuasive text elements and different types of survey distributions. It can serve as inspiration for further research in the context of using nudges to increase response rate. Based on the results from this study, it is recommended that future research is done, because the nudges used in this study remain promising.

In future researches, the effect of providing shorter parts of one long survey, similar as was done in this study, should still be further investigated. However, it should be made more clear to the employees that each short survey is part of a larger research. Additionally, it is recommended to explore the use of shorter surveys with longer times in between each individual part, as this can possibly reduce survey fatigue and annoyance of being requested to participate multiple times a week.

In addition, a positive effect of persuasion based on personal benefit was observed, yet was found to be insignificant. Therefore, future research should be done on the effects of persuasive textual elements that are based on personal benefit and are differently implemented, as it is possible that in this study the implementation of this nudge was too subtle to see significant results.

All in all, future research should take notice of the points of improvement and limitations of this study, and use it to develop an improved testing method.

8. Conclusion

The aim of this study was to answer the research question: '*What nudges should Company X implement in their method of surveying employee satisfaction in order to increase response rates?'* In order to be able to answer this research question, a theoretical framework was created in which numerous different types of nudges that, according to scientific literature have a positive effect on response rate, were explored and discussed. Based on this theoretical framework and with the demands and requirements of Company X taken into consideration, two promising nudges were chosen for further testing. This study tested the effects different types of persuasive textual elements and different types of survey distribution types on the response rate of an employee satisfaction survey.

Based on the results from this test, it has been concluded that using a type of survey that consists of separate shorter parts, instead of one 'traditional' survey, does not increase response rates. In contrast, the results showed that the response rates for the 'traditional' surveys that consisted of one long part were significantly higher than its shorter, separate, counter-parts. In addition, the results indicated that the test groups that were exposed to texts that emphasized the personal benefit of participation had a higher response rate, especially compared to when the benefit of the group (colleagues) was emphasized. However, after further testing it has been concluded that the effects of the different persuasion types had no significant impact on the response rate.

This conclusion and recommendation might appear underwhelming, but it should be able to provide a useful insight into potential future researches and experiments to further investigate the optimal method of conducting employee satisfaction surveys, particularly for Company X.

9. Recommendation for Company X

To conclude and to give an answer to the research question. Based on the results of this study it is recommended that Company X does not implement the short type of survey, as in this testing it resulted in lower response rates when compared to a more 'traditional' long type survey. However, as in general it is recommended that further research is done, it is also recommended that Company X continues to shape their method of executing employee satisfaction surveys. Based on the discussion section of this report, future testing can be done with improved methods of testing, which possibly can result in more significant improvements.

In addition, it is recommended that the use of persuasive textual elements is not completely deemed as ineffective. This is because this study showed a positive, yet insignificant, effect of persuading by emphasizing the personal benefit. Moreover, as scientific literature does indicate that persuasive text elements are promising, it is recommended that Company X continues to research it's potential effectiveness. If further research is done, it is recommended to further test the effects of persuading by emphasizing the personal benefit, as in this study it showed the most promising results.

All in all, the main recommendation for now is to make use of a more 'traditional' type of survey distribution, instead of using separate shorter parts. In addition, because persuasion based on personal benefit showed the most promising results in this study and did not influence the answers that were given by employees, it is recommended to also add elements that emphasize one's own personal benefit of participating in a survey. Finally, the overarching recommendation would be to continue investigating promising options of improving response rates, as this study provided interesting and useful insights into the complexity improving response rates, which can be used as inspiration for future researches.

10. References

Ariely, D., Bracha, A., & Meier, S. (2009). Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *American Economic Review*, *99*(1), 544–555. https://doi.org/10.1257/aer.99.1.544

Attari, S. Z., Krantz, D. H., & Weber, E. U. (2014). Reasons for cooperation and defection in real-world social dilemmas. In *Judgment and Decision Making* (Vol. 9, Issue 4).

Bar-Tal, D. (1986). Altruistic Motivation to Help: Definition, Utility and Operationalization. In *Humboldt Journal of Social Relations* (Vol. 13, Issues 1-- 2, pp. 3–14). Department of Sociology, Humboldt State University. https://www.jstor.org/stable/23262656

Bergh, J., Christensen, D. A., & Matland, R. E. (2019). When is a Reminder Enough? Text Message Voter Mobilization in a European Context. *Political Behavior*, 1–21. https://doi.org/10.1007/s11109-019-09578-1

Betsch, C., Böhm, R., & Korn, L. (2013). Inviting free-riders or appealing to prosocial behavior? Game-theoretical reflections on communicating herd immunity in vaccine advocacy. *Health Psychology*, *32*(9), 978–985. https://doi.org/10.1037/a0031590

Böhm, R., & Rockenbach, B. (2013). The Inter-Group Comparison - Intra-Group Cooperation Hypothesis: Comparisons between Groups Increase Efficiency in Public Goods Provision. *PLoS ONE*, *8*(2). https://doi.org/10.1371/journal.pone.0056152

Church, A. H. (1993). Estimating the Effect of Incentives on Mail Survey Response Rates: A Meta-Analysis. *Public Opinion Quarterly*, *57*(1), 62. https://doi.org/10.1086/269355

Crawford, S. D., Couper, M. P., & Lamias, M. J. (2001). Web Surveys. *Social Science Computer Review*, *19*(2), 146–162. https://doi.org/10.1177/089443930101900202

Darley, J. M., & Latane, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology*, *8*(4 PART 1), 377–383. https://doi.org/10.1037/h0025589

Dawes, R. M. (1980). Social Dilemmas. *Annual Review of Psychology*, *31*(1), 169–193. https://doi.org/10.1146/annurev.ps.31.020180.001125

Dillman, D. A., Singer, E., Clark, J. R., & Treat, J. B. (1996). Effects of Benefits Appeals, Mandatory Appeals, and Variations in Statements of Confidentiality on Completion Rates for Census Questionnaires. *Public Opinion Quarterly*, *60*(3), 376. https://doi.org/10.1086/297759

Dufwenberg, M., Gächter, S., & Hennig-Schmidt, H. (2011). The framing of games and the psychology of play. *Games and Economic Behavior*, *73*(2), 459–478. https://doi.org/10.1016/j.geb.2011.02.003

Edwards, P. J., Roberts, I., Clarke, M. J., DiGuiseppi, C., Wentz, R., Kwan, I., Cooper, R., Felix, L. M., & Pratap, S. (2009). Methods to increase response to postal and electronic questionnaires. In *Cochrane Database of Systematic Reviews* (Issue 3). John Wiley and Sons Ltd. https://doi.org/10.1002/14651858.MR000008.pub4

Ellingsen, T., Johannesson, M., Mollerstrom, J., & Munkhammar, S. (2012). Social framing effects: Preferences or beliefs? *Games and Economic Behavior*, *76*(1), 117–130. https://doi.org/10.1016/j.geb.2012.05.007

Epton, T., Currie, S., & Armitage, C. J. (2017). Unique Effects of Setting Goals on Behavior Change: Systematic Review and Meta-Analysis. *Journal of Consulting and Clinical Psychology*, *85*(12), 1182–1198. https://doi.org/10.1037/ccp0000260

Galea, S., & Tracy, M. (2007). Participation Rates in Epidemiologic Studies. *Annals of Epidemiology*, *17*(9), 643–653. https://doi.org/10.1016/j.annepidem.2007.03.013

Gallus, J. (2017). Fostering public good contributions with symbolic awards: A large-scale natural field experiment at wikipedia. *Management Science*, *63*(12), 3999–4015. https://doi.org/10.1287/mnsc.2016.2540

Groves, R. M., & Peytcheva, E. (2008). The impact of nonresponse rates on nonresponse bias: A meta-analysis. *Public Opinion Quarterly*, *72*(2), 167–189. https://doi.org/10.1093/poq/nfn011

Harkin, B., Webb, T. L., Chang, B. P. I., Prestwich, A., Conner, M., Kellar, I., Benn, Y., & Sheeran, P. (2016). Does monitoring goal progress promote goal attainment? A meta-analysis of the experimental evidence. *Psychological Bulletin*, *142*(2), 198–229. https://doi.org/10.1037/bul0000025

Harrison, S., Henderson, J., Alderdice, F., & Quigley, M. A. (2019). Methods to increase response rates to a population-based maternity survey: A comparison of two pilot studies. *BMC Medical Research Methodology*, *19*(1), 65. https://doi.org/10.1186/s12874-019-0702-3

Houston, M. J., & Nevin, J. R. (1977). The Effects of Source and Appeal on Mail Survey Response Patterns. *Journal of Marketing Research*, *14*(3), 374. https://doi.org/10.2307/3150777

Kollock, P. (1998). Social Dilemmas: The Anatomy of Cooperation. *Annual Review of Sociology*, *24*(1), 183–214. https://doi.org/10.1146/annurev.soc.24.1.183

Korn, L., Betsch, C., Böhm, R., & Meier, N. W. (2018). Social nudging: The effect of social feedback interventions on vaccine uptake. *Health Psychology*, *37*(11), 1045–1054. https://doi.org/10.1037/hea0000668

Kropf, M. E., & Blair, J. (2005). Eliciting survey cooperations: Incentives, self-interest, and norms of cooperation. In *Evaluation Review* (Vol. 29, Issue 6, pp. 559–575). https://doi.org/10.1177/0193841X05278770

Kube, S., Maréchal, M. A., & Puppe, C. (2012). The currency of reciprocity: Gift exchange in the workplace. In *American Economic Review* (Vol. 102, Issue 4, pp. 1644–1662). https://doi.org/10.1257/aer.102.4.1644

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, *57*(9), 705–717. https://doi.org/10.1037/0003-066X.57.9.705

Nagatsu, M. (2015). Social Nudges: Their Mechanisms and Justification. *Review of Philosophy and Psychology*, *6*(3), 481–494. https://doi.org/10.1007/s13164-015-0245-4

Nakash, R. A., Hutton, J. L., Jørstad-Stein, E. C., Gates, S., & Lamb, S. E. (2006). Maximising response to postal questionnaires - A systematic review of randomised trials in health research. In *BMC Medical Research Methodology* (Vol. 6). https://doi.org/10.1186/1471-2288-6-5

Oprescu, F., Jones, C., & Katsikitis, M. (2014). I Play at Work - Ten principles for transforming work processes through gamification. *Frontiers in Psychology*, *5*(JAN). https://doi.org/10.3389/fpsyg.2014.00014

Pedersen, M. J., & Nielsen, C. V. (2016). Improving Survey Response Rates in Online Panels: Effects of Low-Cost Incentives and Cost-Free Text Appeal Interventions. *Social Science Computer Review*, *34*(2), 229–243. https://doi.org/10.1177/0894439314563916

Porter, S. R., Whitcomb, M. E., & Weitzer, W. H. (2004). Multiple surveys of students and survey fatigue. *New Directions for Institutional Research*, *2004*(121), 63–73. https://doi.org/10.1002/ir.101

Robb, K. A., Gatting, L., & Wardle, J. (2017). What impact do questionnaire length and monetary incentives have on mailed health psychology survey response? *British Journal of Health Psychology*, *22*(4), 671–685. https://doi.org/10.1111/bjhp.12239

Rose, D. S., Sidle, S. D., & Griffith, K. H. (2007). A Penny for Your Thoughts. *Organizational Research Methods*, *10*(2), 225–240. https://doi.org/10.1177/1094428106294687

Sahlqvist, S., Song, Y., Bull, F., Adams, E., Preston, J., & Ogilvie, D. (2011). Effect of questionnaire length, personalisation and reminder type on response rate to a complex postal survey: Randomised controlled trial. *BMC Medical Research Methodology*, *11*. https://doi.org/10.1186/1471-2288-11-62

Schofield, H., Loewenstein, G., Kopsic, J., & Volpp, K. G. (2015). Comparing the effectiveness of individualistic, altruistic, and competitive incentives in motivating completion of mental exercises. *Journal of Health Economics*, *44*, 286–299. https://doi.org/10.1016/j.jhealeco.2015.09.007

Scott, P., & Edwards, P. (2006). Personally addressed hand-signed letters increase questionnaire response: A meta-analysis of randomised controlled trials. *BMC Health Services Research*, *6*. https://doi.org/10.1186/1472-6963-6-111

Sharp, L. M., & Frankel, J. (1983). Respondent Burden: A Test of Some Common Assumptions. *Public Opinion Quarterly*, *47*(1), 36. https://doi.org/10.1086/268765

Smith, M. G., Witte, M., Rocha, S., & Basner, M. (2019). Effectiveness of incentives and follow-up on increasing survey response rates and participation in field studies. *BMC Medical Research Methodology*, *19*(1), 230. https://doi.org/10.1186/s12874-019-0868-8

Tamer Cavusgil, S., & Elvey-Kirk, L. A. (1998). Mail survey response behavior. *European Journal of Marketing*, *32*(11/12), 1165–1192. https://doi.org/10.1108/03090569810243776

Tourangeau, R., & Plewes, T. J. (2013). Nonresponse in social science surveys: A research agenda. In *Nonresponse in Social Science Surveys: A Research Agenda*. National Academies Press. https://doi.org/10.17226/18293

Vaughn, L. J., Bortnick, M. J., Carey, J., Orgovan, V. R., & Munko, J. (2018). Measuring response rate and increasing satisfaction in innovative environments: The impact of feedback. *Conference on Human Factors in Computing Systems - Proceedings*, *2018-April*, 1–7. https://doi.org/10.1145/3170427.3174356

Zhong, C. B., Loewenstein, J., & Murnighan, J. K. (2007). Speaking the same language: The cooperative effects of labeling in the prisoner's dilemma. *Journal of Conflict Resolution*, *51*(3), 431–456. https://doi.org/10.1177/0022002707300834

11. Appendixes

Appendix A: Subject and content of invite e-mails, and informed consent for each test group

Test group	Control – short
Subject	Onderzoek naar veiligheidsbewustzijn en corona-maatregelen (Deel 1)
Content	Beste collega, Company X is geïnteresseerd in de meningen en ervaringen van haar medewerkers. We zouden het daarom erg op prijs stellen als je deze vragenlijst over veiligheidsbewustzijn wil invullen. Zeker tijdens deze periode met extra maatregelen. De uitvoering en daarmee ook de analyse van de ingevulde gegevens zal gedaan worden door een student van de Universiteit Twente. Het invullen is daarmee volledig anoniem en de antwoorden zullen ook niet door Company X worden verwerkt. Je kan deze vragen invullen tot en met [**date**]. Het invullen van deze vragen duurt slechts 2 minuten. Onderstaande link biedt toegang tot de vragen: [**link**] Heb je vragen of opmerkingen? Neem dan contact op met [**researcher's e-mail address**]
Informed consent	Beste medewerker van Company X, Fijn dat je mee wilt doen aan dit onderzoek. Met dit onderzoek wil Company X meer inzicht krijgen in de meningen en ervaringen van haar medewerkers met betrekking tot het veiligheidsbewustzijn en de coronamaatregelen. Ik ben Max Le Noble, student aan de Universiteit Twente, en ik zal dit onderzoek leiden. Deelname aan het onderzoek vereist alleen het invullen van een vragenlijst. Het invullen is volledig anoniem. Er wordt dus op geen enkele manier vertrouwelijke informatie of persoonsgegevens van of over jou naar buiten gebracht. Je antwoorden zullen dus op geen enkele manier terug te leiden zijn naar jouw identiteit. Bovendien is Company X niet betrokken bij de verwerking van de antwoorden. Zij krijgen alleen een terugkoppeling van de algemene resultaten. Deelname brengt dus geen risico's of ongemakken met zich mee. Deelname is volledig vrijwillig. Je hebt op elk moment het recht om te stoppen of pauzeren met het invullen van de vragen. Hiervoor hoef je geen reden te geven. Als je besluit te stoppen tijdens het invullen van de vragen, zullen de antwoorden die tot dan toe zijn gegeven worden gebruikt. Het invullen van de deze vragen duurt ongeveer 2 minuten. Ik wil je vragen om alles in één keer in te vullen. Mocht je vragen of opmerkingen hebben over dit onderzoek, neem dan contact op met **[researcher's e-mail address]** Bedankt voor je medewerking.

Test group	Control – long
Subject	Onderzoek naar veiligheidsbewustzijn en corona-maatregelen
Content	Beste collega, Company X is geïnteresseerd in de meningen en ervaringen van haar medewerkers. We zouden het daarom erg op prijs stellen als je deze vragenlijst over veiligheidsbewustzijn wil invullen. Zeker tijdens deze periode met extra maatregelen. De uitvoering en daarmee ook de analyse van de ingevulde gegevens zal gedaan worden door een student van de Universiteit Twente. Het invullen is daarmee volledig anoniem en de antwoorden zullen ook niet door Company X worden verwerkt. Je kan deze vragen invullen tot en met [**date**]. Het invullen van deze vragen duurt slechts 12 minuten. Onderstaande link biedt toegang tot de vragen: [**link**] Heb je vragen of opmerkingen? Neem dan contact op met [**researcher's e-mail address**]
Informed consent	Beste medewerker van Company X, Fijn dat je mee wilt doen aan dit onderzoek. Met dit onderzoek wil Company X meer inzicht krijgen in de meningen en ervaringen van haar medewerkers met betrekking tot het veiligheidsbewustzijn en de coronamaatregelen. Ik ben Max Le Noble, student aan de Universiteit Twente, en ik zal dit onderzoek leiden. Deelname aan het onderzoek vereist alleen het invullen van een vragenlijst. Het invullen is volledig anoniem. Er wordt dus op geen enkele manier vertrouwelijke informatie of persoonsgegevens van of over jou naar buiten gebracht. Je antwoorden zullen dus op geen enkele manier terug te leiden zijn naar jouw identiteit. Bovendien is Company X niet betrokken bij de verwerking van de antwoorden. Zij krijgen alleen een terugkoppeling van de algemene resultaten. Deelname brengt dus geen risico's of ongemakken met zich mee. Deelname is volledig vrijwillig. Je hebt op elk moment het recht om te stoppen of pauzeren met het invullen van de vragen. Hiervoor hoef je geen reden te geven. Als je besluit te stoppen tijdens het invullen van de vragen, zullen de antwoorden die tot dan toe zijn gegeven worden gebruikt. Het invullen van de deze vragen duurt ongeveer 12 minuten. Ik wil je vragen om alles in één keer in te vullen. Mocht je vragen of opmerkingen hebben over dit onderzoek, neem dan contact op met **[researcher's e-mail address]** Bedankt voor je medewerking.

Test group	Group-benefit – short
Subject	Help je collega's! - Onderzoek naar veiligheidsbewustzijn en corona-maatregelen (Deel 1)
Content	Beste collega, Company X is geïnteresseerd in de meningen en ervaringen van haar medewerkers. We zouden het daarom erg op prijs stellen als je deze vragenlijst over veiligheidsbewustzijn wil invullen. Zeker tijdens deze periode met extra maatregelen. Door jouw mening te geven krijgt Company X een beter beeld van hoe we een nog veiligere en gezondere werkomgeving kunnen creëren. Daarmee help je jouw collega's! De uitvoering en daarmee ook de analyse van de ingevulde gegevens zal gedaan worden door een student van de Universiteit Twente. Het invullen is daarmee volledig anoniem en de antwoorden zullen ook niet door Company X worden verwerkt. Je kan deze vragen invullen tot en met [**date**]. Het invullen van deze vragen duurt slechts 2 minuten. Onderstaande link biedt toegang tot de vragen: [**link**] Heb je vragen of opmerkingen? Neem dan contact op met [**researcher's e-mail address**]
Informed consent	Beste medewerker van Company X, Fijn dat je mee wilt doen aan dit onderzoek. Met dit onderzoek wil Company X meer inzicht krijgen in de meningen en ervaringen van haar medewerkers met betrekking tot het veiligheidsbewustzijn en de coronamaatregelen. Ik ben Max Le Noble, student aan de Universiteit Twente, en ik zal dit onderzoek leiden. Door deel te nemen aan dit onderzoek en jouw mening te geven krijgt Company X een beter beeld van hoe zij een nog veiligere en gezondere werkomgeving kunnen creëren. Daarmee help je dus jouw collega's. Deelname aan het onderzoek vereist alleen het invullen van een vragenlijst. Het invullen is volledig anoniem. Er wordt dus op geen enkele manier vertrouwelijke informatie of persoonsgegevens van of over jou naar buiten gebracht. Je antwoorden zullen dus op geen enkele manier terug te leiden zijn naar jouw identiteit. Bovendien is Company X niet betrokken bij de verwerking van de antwoorden. Zij krijgen alleen een terugkoppeling van de algemene resultaten. Deelname brengt dus geen risico's of ongemakken met zich mee. Deelname is volledig vrijwillig. Je hebt op elk moment het recht om te stoppen of pauzeren met het invullen van de vragen. Hiervoor hoef je geen reden te geven. Als je besluit te stoppen tijdens het invullen van de vragen, zullen de antwoorden die tot dan toe zijn gegeven worden gebruikt. Het invullen van de deze vragen duurt ongeveer 2 minuten. Ik wil je vragen om alles in één keer in te vullen. Mocht je vragen of opmerkingen hebben over dit onderzoek, neem dan contact op met **[researcher's e-mail address]** Bedankt voor je medewerking.

Test group	Group-benefit – long
Subject	Help je collega's! - Onderzoek naar veiligheidsbewustzijn en corona-maatregelen
Content	Beste collega, Company X is geïnteresseerd in de meningen en ervaringen van haar medewerkers. We zouden het daarom erg op prijs stellen als je deze vragenlijst over veiligheidsbewustzijn wil invullen. Zeker tijdens deze periode met extra maatregelen. Door jouw mening te geven krijgt Company X een beter beeld van hoe we een nog veiligere en gezondere werkomgeving kunnen creëren. Daarmee help je jouw collega's! De uitvoering en daarmee ook de analyse van de ingevulde gegevens zal gedaan worden door een student van de Universiteit Twente. Het invullen is daarmee volledig anoniem en de antwoorden zullen ook niet door Company X worden verwerkt. Je kan deze vragen invullen tot en met [**date**]. Het invullen van deze vragen duurt slechts 12 minuten. Onderstaande link biedt toegang tot de vragen: [**link**] Heb je vragen of opmerkingen? Neem dan contact op met [**researcher's e-mail address**]
Informed consent	Beste medewerker van Company X, Fijn dat je mee wilt doen aan dit onderzoek. Met dit onderzoek wil Company X meer inzicht krijgen in de meningen en ervaringen van haar medewerkers met betrekking tot het veiligheidsbewustzijn en de coronamaatregelen. Ik ben Max Le Noble, student aan de Universiteit Twente, en ik zal dit onderzoek leiden. Door deel te nemen aan dit onderzoek en jouw mening te geven krijgt Company X een beter beeld van hoe zij een nog veiligere en gezondere werkomgeving kunnen creëren. Daarmee help je dus jouw collega's. Deelname aan het onderzoek vereist alleen het invullen van een vragenlijst. Het invullen is volledig anoniem. Er wordt dus op geen enkele manier vertrouwelijke informatie of persoonsgegevens van of over jou naar buiten gebracht. Je antwoorden zullen dus op geen enkele manier terug te leiden zijn naar jouw identiteit. Bovendien is Company X niet betrokken bij de verwerking van de antwoorden. Zij krijgen alleen een terugkoppeling van de algemene resultaten. Deelname brengt dus geen risico's of ongemakken met zich mee. Deelname is volledig vrijwillig. Je hebt op elk moment het recht om te stoppen of pauzeren met het invullen van de vragen. Hiervoor hoef je geen reden te geven. Als je besluit te stoppen tijdens het invullen van de vragen, zullen de antwoorden die tot dan toe zijn gegeven worden gebruikt. Het invullen van de deze vragen duurt ongeveer 12 minuten. Ik wil je vragen om alles in één keer in te vullen. Mocht je vragen of opmerkingen hebben over dit onderzoek, neem dan contact op met **[researcher's e-mail address]** Bedankt voor je medewerking.

Test group	Self-benefit – short
Subject	Jouw mening telt! - Onderzoek naar veiligheidsbewustzijn en corona-maatregelen (Deel 1)
Content	Beste collega, Company X is geïnteresseerd in de meningen en ervaringen van haar medewerkers. We zouden het daarom erg op prijs stellen als je deze vragenlijst over veiligheidsbewustzijn wil invullen. Zeker tijdens deze periode met extra maatregelen. Door jouw unieke mening te geven krijgt Company X een beter beeld van hoe we voor jou een nog veiligere en gezondere werkomgeving kunnen creëren. De uitvoering en daarmee ook de analyse van de ingevulde gegevens zal gedaan worden door een student van de Universiteit Twente. Het invullen is daarmee volledig anoniem en de antwoorden zullen ook niet door Company X worden verwerkt. Je kan deze vragen invullen tot en met [**date**]. Het invullen van deze vragen duurt slechts 2 minuten. Onderstaande link biedt toegang tot de vragen: [**link**] Heb je vragen of opmerkingen? Neem dan contact op met [**researcher's e-mail address**]
Informed consent	Beste medewerker van Company X, Fijn dat je mee wilt doen aan dit onderzoek. Met dit onderzoek wil Company X meer inzicht krijgen in de meningen en ervaringen van haar medewerkers met betrekking tot het veiligheidsbewustzijn en de coronamaatregelen. Ik ben Max Le Noble, student aan de Universiteit Twente, en ik zal dit onderzoek leiden. Door deel te nemen aan dit onderzoek en jouw unieke mening te geven krijgt Company X een beter beeld van hoe zij voor jou een nog veiligere en gezondere werkomgeving kunnen creëren. Deelname aan het onderzoek vereist alleen het invullen van een vragenlijst. Het invullen is volledig anoniem. Er wordt dus op geen enkele manier vertrouwelijke informatie of persoonsgegevens van of over jou naar buiten gebracht. Je antwoorden zullen dus op geen enkele manier terug te leiden zijn naar jouw identiteit. Bovendien is Company X niet betrokken bij de verwerking van de antwoorden. Zij krijgen alleen een terugkoppeling van de algemene resultaten. Deelname brengt dus geen risico's of ongemakken met zich mee. Deelname is volledig vrijwillig. Je hebt op elk moment het recht om te stoppen of pauzeren met het invullen van de vragen. Hiervoor hoef je geen reden te geven. Als je besluit te stoppen tijdens het invullen van de vragen, zullen de antwoorden die tot dan toe zijn gegeven worden gebruikt. Het invullen van de deze vragen duurt ongeveer 2 minuten. Ik wil je vragen om alles in één keer in te vullen. Mocht je vragen of opmerkingen hebben over dit onderzoek, neem dan contact op met **[researcher's e-mail address]** Bedankt voor je medewerking.

Test group	Self-benefit – long
Subject	Jouw mening telt! - Onderzoek naar veiligheidsbewustzijn en corona-maatregelen
Content	Beste collega, Company X is geïnteresseerd in de meningen en ervaringen van haar medewerkers. We zouden het daarom erg op prijs stellen als je deze vragenlijst over veiligheidsbewustzijn wil invullen. Zeker tijdens deze periode met extra maatregelen. Door jouw unieke mening te geven krijgt Company X een beter beeld van hoe we voor jou een nog veiligere en gezondere werkomgeving kunnen creëren. De uitvoering en daarmee ook de analyse van de ingevulde gegevens zal gedaan worden door een student van de Universiteit Twente. Het invullen is daarmee volledig anoniem en de antwoorden zullen ook niet door Company X worden verwerkt. Je kan deze vragen invullen tot en met [**date**]. Het invullen van deze vragen duurt slechts 12 minuten. Onderstaande link biedt toegang tot de vragen: [**link**] Heb je vragen of opmerkingen? Neem dan contact op met [**researcher's e-mail address**]
Informed consent	Beste medewerker van Company X, Fijn dat je mee wilt doen aan dit onderzoek. Met dit onderzoek wil Company X meer inzicht krijgen in de meningen en ervaringen van haar medewerkers met betrekking tot het veiligheidsbewustzijn en de coronamaatregelen. Ik ben Max Le Noble, student aan de Universiteit Twente, en ik zal dit onderzoek leiden. Door deel te nemen aan dit onderzoek en jouw unieke mening te geven krijgt Company X een beter beeld van hoe zij voor jou een nog veiligere en gezondere werkomgeving kunnen creëren. Deelname aan het onderzoek vereist alleen het invullen van een vragenlijst. Het invullen is volledig anoniem. Er wordt dus op geen enkele manier vertrouwelijke informatie of persoonsgegevens van of over jou naar buiten gebracht. Je antwoorden zullen dus op geen enkele manier terug te leiden zijn naar jouw identiteit. Bovendien is Company X niet betrokken bij de verwerking van de antwoorden. Zij krijgen alleen een terugkoppeling van de algemene resultaten. Deelname brengt dus geen risico's of ongemakken met zich mee. Deelname is volledig vrijwillig. Je hebt op elk moment het recht om te stoppen of pauzeren met het invullen van de vragen. Hiervoor hoef je geen reden te geven. Als je besluit te stoppen tijdens het invullen van de vragen, zullen de antwoorden die tot dan toe zijn gegeven worden gebruikt. Het invullen van de deze vragen duurt ongeveer 12 minuten. Ik wil je vragen om alles in één keer in te vullen. Mocht je vragen of opmerkingen hebben over dit onderzoek, neem dan contact op met **[researcher's e-mail address]** Bedankt voor je medewerking.

Appendix B: Q36 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
1,987	5	307	,080

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix C: Q36 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5,680[a]	5	1,136	1,096	,363	,018
Intercept	3566,247	1	3566,247	3440,666	,000	,918
Persuasion type	3,818	2	1,909	1,842	,160	,012
Distribution type	,793	1	,793	,765	,382	,002
Persuasion type * Distribution type	,967	2	,484	,467	,628	,003
Error	318,205	307	1,036			
Total	5284,000	313				
Corrected Total	323,885	312				

a. R Squared = ,018 (Adjusted R Squared = ,002)

Appendix D: Q22 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
1,085	5	330	,368

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix E: Q22 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3,532[a]	5	,706	,659	,655	,010
Intercept	2600,536	1	2600,536	2424,959	,000	,880
Persuasion type	1,888	2	,944	,880	,416	,005
Distribution type	,019	1	,019	,018	,894	,000
Persuasion type * Distribution type	2,297	2	1,148	1,071	,344	,006
Error	353,893	330	1,072			
Total	3939,000	336				
Corrected Total	357,426	335				

a. R Squared = ,010 (Adjusted R Squared = -,005)

Appendix F: Q33 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
1,480	5	307	,196

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix G: Q33 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3,125[a]	5	,625	,675	,643	,011
Intercept	3467,800	1	3467,800	3743,429	,000	,924
Persuasion type	1,211	2	,605	,653	,521	,004
Distribution type	,047	1	,047	,051	,822	,000
Persuasion type * Distribution type	2,620	2	1,310	1,414	,245	,009
Error	284,396	307	,926			
Total	5035,000	313				
Corrected Total	287,521	312				

a. R Squared = ,011 (Adjusted R Squared = -,005)

Appendix H: Q35 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
1,162	5	231	,329

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix I: Q35 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	9,076[a]	5	1,815	1,610	,158	,034
Intercept	2853,832	1	2853,832	2531,615	,000	,916
Persuasion type	6,678	2	3,339	2,962	,054	,025
Distribution type	,174	1	,174	,155	,695	,001
Persuasion type * Distribution type	2,333	2	1,167	1,035	,357	,009
Error	260,401	231	1,127			
Total	3911,000	237				
Corrected Total	269,477	236				

a. R Squared = ,034 (Adjusted R Squared = ,013)

Appendix J: Q10 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
,835	5	365	,525

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix K: Q10 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1,695[a]	5	,339	,319	,901	,004
Intercept	5459,817	1	5459,817	5140,696	,000	,934
Persuasion type	1,395	2	,698	,657	,519	,004
Distribution type	,127	1	,127	,120	,730	,000
Persuasion type * Distribution type	,545	2	,273	,257	,774	,001
Error	387,658	365	1,062			
Total	7281,000	371				
Corrected Total	389,353	370				

a. R Squared = ,004 (Adjusted R Squared = -,009)

Appendix L: Q17 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
,584	5	342	,712

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix M: Q17 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1,334[a]	5	,267	,330	,895	,005
Intercept	4259,394	1	4259,394	5270,051	,000	,939
Persuasion type	,738	2	,369	,457	,634	,003
Distribution type	,001	1	,001	,001	,973	,000
Persuasion type * Distribution type	,206	2	,103	,128	,880	,001
Error	276,413	342	,808			
Total	6072,000	348				
Corrected Total	277,747	347				

a. R Squared = ,005 (Adjusted R Squared = -,010)

Appendix N: Q28 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
1,497	5	315	,190

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix O: Q28 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3,779[a]	5	,756	,924	,466	,014
Intercept	3747,299	1	3747,299	4579,233	,000	,936
Persuasion type	1,187	2	,593	,725	,485	,005
Distribution type	,002	1	,002	,002	,962	,000
Persuasion type * Distribution type	,698	2	,349	,426	,653	,003
Error	257,772	315	,818			
Total	5302,000	321				
Corrected Total	261,551	320				

a. R Squared = ,014 (Adjusted R Squared = -,001)

Appendix P: Q38 Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
,495	5	307	,780

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Persuasion type + Distribution type + Persuasion type * Distribution type

Appendix Q: Q38 Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5,045[a]	5	1,009	,722	,607	,012
Intercept	15176,247	1	15176,247	10862,028	,000	,973
Persuasion type	,399	2	,199	,143	,867	,001
Distribution type	1,398	1	1,398	1,001	,318	,003
Persuasion type * Distribution type	3,103	2	1,551	1,110	,331	,007
Error	428,935	307	1,397			
Total	21372,000	313				
Corrected Total	433,981	312				

a. R Squared = ,012 (Adjusted R Squared = -,004)