PHYSICAL ACTIVITY IN THE WORK ENVIRONMENT

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Colophon

Physical Activity in the Work Environment

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Preface

This report shows my graduation research “physical activity in the work environment” that is part of the master track Management in the Built Environment (MBE) of the master Architecture, Urbanism and Building Sciences (MSc AUBS) at the Delft University of Technology (TU Delft).

In February 2020 – right before the COVID-19 pandemic – I started my graduation research and chose to focus on health and the built environment. At that time, I didn’t know that health suddenly became even more important due to the COVID-19 pandemic. People, in particular office employees, already moved too little and sat too much. But this got even worse because of the COVID-19 pandemic where people spent more time at home. Through this research, I wanted to know how to create a better understanding of physical activity in the office building and the home work environment. And as a result, contribute to office employees’ well-being by knowing how to stimulate physical activity in the work environment.

I would like to thank my supervisors Monique Arkesteijn and Alexander Koutamanis from the TU Delft and Pity Jongens from Aestate for their excellent guidance. I also would like to thank the organisations Aestate and draaijer+partners for their cooperation and especially its employees for their participation in this study. Without them, I would not have been able to conduct this research.

I hope you enjoy your reading.

Jetske de Graaf

Delft, June 30, 2021

Abstract

Globally, one in four adults do not meet the recommended amount of physical activity. Because people spend a significant amount of time in the work environment and especially office employees spend a lot of time in sedentary behaviour and have low physical activity levels, this study focuses on the reduction of sedentary behaviour and increase of physical activity in both the office building and the home work environment by replacing sedentary behaviour with incidental physical activity in terms of walking and stair climbing.

This study specifically focuses on the relation between the arrangement of spaces within the office building and employees' incidental physical activity, since there is limited existing knowledge on this relation. In addition, this study focuses on other spatial, social and personal factors that may influence incidental physical activity within offices where spaces are arranged differently and in the home work environment. Therefore, the main research question is as follows: "How can the arrangement of spaces within the office building and the home work environment stimulate office employees' incidental physical activity in terms of walking and stair climbing?"

The study resulted in an enhanced method to answer this research question. In this study, this method is tested, refined and retested to advise for further use of the method. Next to that, some results about the relation between the work environment and office employees' incidental physical activity are discussed.

Keywords – sedentary behaviour, incidental physical activity, movement, office building, home work environment, arrangement of spaces, social environment

Executive summary

Introduction

One in four adults do not meet the recommended amount of physical activity (World Health Organization, 2018) of minimal 150 minutes a week (World Health Organization, 2010). And even when adults meet the recommendation, sitting can have negative health effects (U.S. Department of Health and Human Services, 2018). Decreasing sitting by *promoting incidental physical activity* – such as short walks and stair climbing – helps to gradually increase the amount of physical activity towards the recommended amount of physical activity for health benefits (World Health Organization, 2018).

Because people spend a significant amount of time in the work environment (Engelen, Dhillon, Chau, Hespe & Bauman, 2016) and especially *office employees* move too little and sit too much (Fisher, Ucci, Smith, Sawyer, Spinney, Konstantatou & Marmot, 2018), this study focuses on decreasing sitting by promoting incidental physical activity in terms of walking and stair climbing in both the office building and the home work environment.

Currently, there is limited research on the relation between the *arrangement of spaces within the office building* and employees' incidental physical activity in terms of walking and stair climbing according to the conducted systematic literature review. Besides, existing research isolates the influence of the spatial environment from the social environment. Therefore, the research questions are as follows:

How can the arrangement of spaces within the office building and the home work environment stimulate office employees' incidental physical activity in terms of walking and stair climbing?

1 | How physically active are office employees in terms of walking and stair climbing in a different arrangement of spaces within the office building and the home work environment?

2 | What spatial, social and personal factors support and inhibit walking and stair climbing within a different arrangement of spaces within the office building and the home work environment?

As stated in the research questions, also employees' physical activity within the *home work environment* is studied. This opportunity arose as a result of the COVID-19 pandemic.

The main aim of this research is to develop an *enhanced method* to assess physical activity in the office environment and accordingly answer the research questions. The developed method is based on the findings of the systematic literature review including the strengths and limitations of previous studies.

The office activity assessment method

A cross-sectional study using an *explanatory sequential mixed-method research design* is conducted. It consists of quantitative research (spatial graph, survey, activity tracker and logbook) followed by qualitative research (focus group) to explain the results of the quantitative research.

First, the variables related to the arrangement of spaces are objectively measured by using office floor plans for *spatial graphs*. Secondly, employees physical activity within the office building and spatial, social and personal characteristics are measured by an online *survey*. Thirdly, employees' step count within the home work environment is objectively measured by using an *activity tracker*. This is done

for five consecutive days. During this period, employees *logged* their stair use and movement patterns and reasons for movement within the home work environment. Besides, the employees logged their stair use and movement patterns and reasons for movement of an average office day. Finally, *focus groups* are conducted to understand the quantitive results of previous steps and to identify spatial, social and personal barriers and facilitators for walking and stair climbing within the office building and the home work environments.

The method is *tested*, refined and retested. For the test and retest of the method, thirty-three office employees of two organisations working in three different offices are studied. Based on the results of the test and retest, the main strengths and limitations of the method are identified:

Strengths:

- Explanatory mixed-method research design: spatial & social environment
- Office building & home work environment
- Combined the strengths of the applied methods in previous studies and improved them
- Diversity of data (collection methods) and its possibilities for analysis
- Objective measurements of arrangement of spaces & physical activity in combination with self-reported physical activity
- Quantification of movement patterns and reasons for movement and related steps

Limitations

- Missing physical activity data & measured steps in the car
- Differences and non-response in self-reported physical activity
- Time-consuming for both the researcher and the participant (drop-outs)
- Unable to connect some of the logbooks with the activity data
- Representation of reality, especially concerning the average working day;
- Unknown routes
- Incomplete floor plans & difficulties to guess the activities of the zones
- Complicated and long survey
- Not all quantitative results could be discussed in the focus group

Further improvements of the method are necessary as the developed method holds important limitations as just summarised. Therefore the following is *recommended*:

- A more automated and valid method (e.g. sensors and/or activity tracker that tracks the route)
- Measure only a select group of employees and/or work environment
- Conduct observations (e.g. site audits) for (additional) information and validation of existing information
- (Another) activity tracker
- Not asking for the situation of different periods in the survey
- Determine what you need to know and what method is needed for this

Based on these recommendations, an *improved version of the initially developed method* is presented which can be used in further research. First, the variables related to the arrangement of spaces are objectively measured by using office floor plans for *spatial graphs*. This should be done for a large number of offices. Based on the results of this step, offices and related organisations need to be selected for studying employees physical activity within the work environment(s). Secondly, a *survey* is conducted to identify factors that support and inhibit walking and stair climbing within the work environment(s). All employees working in the selected offices and related organisations are asked to complete the survey. Compared to the initially developed method, only the context of the measurement period has to be studied and the self-reported physical activity in the office can be excluded. Thirdly, (a selection of) the employees working in the selected offices and related organisations are asked to wear an *activity tracker* for five consecutive days within the office building

and/or home work environment. Fourth, based on the average step count a day of the employees derived from the activity tracker, employees are selected to study in-depth by conducting *observations* and/or *logging* movement patterns and reasons for movement including stair use. During this step, the selected employees are asked to wear the *activity tracker* again for five consecutive days. Finally, *focus groups* are conducted to understand the results of previous steps and to identify spatial, social and personal barriers and facilitators for walking and stair climbing within the work environment(s).

Some of the results produced by the test and retest of the initially developed method

The organisations Aestate and draaijer+partners and its offices are studied. The office of Aestate in Odijk consists of a ground and first floor. This also holds for the office of draaijer+partners in Groningen. However, the office of draaijer+partners in Utrecht is mainly located on the fifth floor with a few shared meeting rooms on the sixth floor. See figure 1.

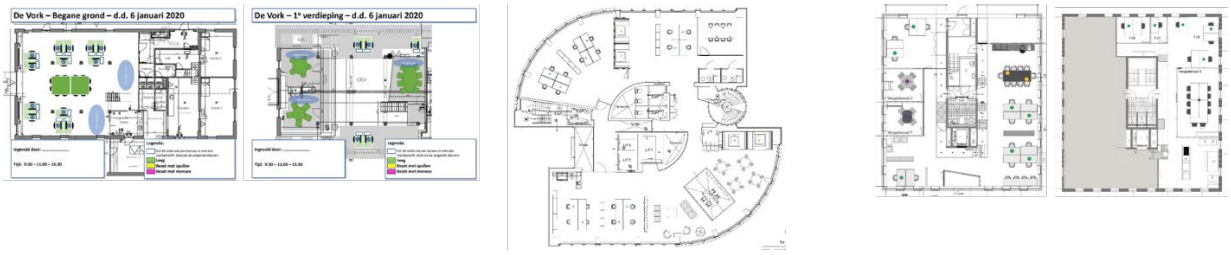

Figure 1. Floor plans: Odijk, Utrecht and Groningen (own figure).

Physical activity | The employees who worked at the office in Groningen indicated to walk on average the most minutes (M = 35) compared to the employees who worked at the office in Odijk and Utrecht (M = 23). Besides, the employees of draaijer+partners (mean = 20) walked slightly more minutes than the employees of Aestate (M = 19) within the home work environment.

Arrangement of spaces | Spatial graphs are developed based on the floor plans (see figure 2) and accordingly the variables related to the arrangement of spaces are objectively measured. The nodes represent office locations and the lines represent the routes between the office locations in the spatial graph. Based on the spatial graph, the distances (number of lines) between all office locations can be measured. With this information, the centrality of each location can be calculated and the center and periphery of the office can be determined.

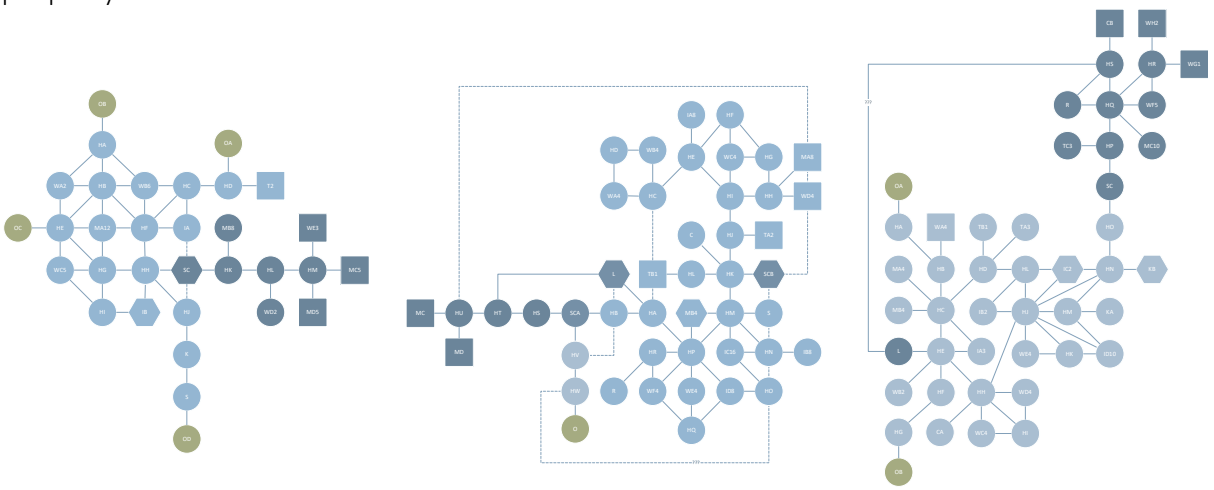

Figure 2. Spatial graphs: Odijk, Utrecht and Groningen (own figure).

The distances within all the three offices are so small that it does not influence employees' workplace choice and the number of trips. Workplace choice mainly derives from non-arrangement of spaces factors such as the view, sufficient (day)light, contact with colleagues and working in silence. These reasons indirectly influence employees physical activity as the location of the workplace determines the distance walked to office locations assuming that the number of trips stayed the same despite the distance. So the combination of the spatial and social environment determine the amount of incidental physical activity in the office environment.

Based on the different amounts of physical activity measured in the three offices, the following can be concluded: (1) the larger the maximum distance between office locations, the more employees walk and, (2) the more workplaces in the periphery, the more employees walk.

Thus, in offices where the maximum distance between office locations is relatively small, it is important to (1) maximise the distance between workplaces and key office destinations especially the ones that are used most, (2) place especially groups of workplaces further from key office destinations, (3) place workplaces for performing undisturbed work further from the group of workplaces in the periphery with a low degree, and (4) make the least central workplaces most attractive. This means that the center of the office should not be a busy but rather a quiet location. For example, an atrium in the middle of the office – which is also climate-friendly. In the home work environment, it is harder to maximise the distances. A more attractive workplace has, for instance, a view to outside or colleagues, (day)light, fresh air and suitable furniture (e.g. adjustable and comfortable chair, sit-stand desk and screen).

Reasons for movement | In the office in Odijk, the employees of Aestate walked considerably more often for getting a drink, (online:) planned meetings and lunch breaks but walked less for getting food, toileting and a walk outside compared to the home work environment. Besides, the employees of draaijer+partners walked more minutes for a walk outside, getting a drink and telephoning, but walked fewer minutes for toileting and lunch breaks in the home work environment compared to the employees of Aestate.

Differences within groups of employees

Home work environment | The employees of Aestate who agreed with the statement "break is encouraged at work by the organization" walked on average more minutes within the home work environment (ΔM = 12,6) than the employees who strongly agreed. The employees who had an education level of WO walked on average more minutes (ΔM = 11,2) than the employees who had an education level of HBO which can be explained by the difference in work activities. The employees who neither agreed nor disagreed and agreed with the statement "the organization pays enough attention to health and vitality" walked on average more minutes, respectively 6,4 and 6,9 minutes than the employees who strongly agreed. Also, within the home work environment working for Aestate, there is a positive correlation with general office work and negative correlations with telephoning and archiving and document maintenance.

Within the home work environment working for draaijer+partners, there are positive correlations with archiving and document maintenance and unplanned meeting and a negative correlation with undisturbed office work.

Office | The employees of Aestate who worked at the office in Odijk and had an education level of WO walked on average more minutes (ΔM = 8,7) than the employees who had an education level of HBO which can be explained by the difference in work activities. The employees who neither agreed nor disagreed with the statement "break is encourage at work by the organization" walked on average

more minutes (ΔM = 7,5) than the employees who strongly agreed. Also, within the office in Odijk, there is a positive correlation with planned meetings and negative correlations with days a week with 30 minutes or more physical activity and general office work.

Within the office in Utrecht, there is a positive correlation with days a week with 30 minutes or more physical activity and negative correlations with interactive office work and archiving and document maintenance.

Within the office in Groningen, there is a positive correlation with general office work and negative correlations with telephoning and interactive office work.

Discussion

The enhance method is tested and retested on limited cases and participants. As a consequence, in some cases, the number of participants per subgroup was extremely low. Besides, due to the COVID-19 pandemic, self-reported physical activity (office) is compared with objectively measured physical activity (home) which makes a part of the findings questionable. In addition, physical activity within the home work environment is measured objectively during the COVID-19 pandemic and the self-reported physical activity within the office building was of the period before the COVID-19 pandemic. In the situation before the COVID-19 pandemic, employees' physical activity within the home work environment can be very different. Moreover, it is questionable whether the work situation after the COVID-19 pandemic will be the same as before the COVID-19 pandemic. The future of work is likely to be hybrid. So both the physical activity within the office building and home work environment is likely to be different in the future, due to the difference in work activities within the work environments.

In further research, more data need to be gathered by using preferably the improved version of the initially developed method to expand the knowledge about physical activity in the work environment. Specifically, more diverse types of (1) offices in terms of the arrangement of spaces and (2) organisations need to be studied. The extensive information produced by the method can serve multiple purposes and related analyses. This strength should be used in future research. For instance, studying the physical activity of sub-groups in-depth (e.g. employees with a movement disability, a particular age group or employees with low activity levels).

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1 Introduction

1.1 Physical (in)activity

1.1.1 Recommended amount of physical activity

Adults should do minimal 150 minutes of moderate-intensity physical activity (MPA), or 75 minutes of vigorous-intensity physical activity (VPA), or equivalent physical activity (PA) per week (World Health Organization, 2010). Globally, one in four adults do not meet this physical activity recommendation (World Health Organization, 2018).

And even when adults meet the recommendation for moderate-to-vigorous physical activity (MVPA), the time spent in sedentary behaviour (SB) can have negative health effects (U.S. Department of Health and Human Services, 2018).

Especially in the COVID-19 pandemic, the time spent in SB is more than normal and it's harder for a lot of people to exercise in a situation where people spent more time at home (WHO, 2021). But in particular at this time, people should do as much physical activity as possible (WHO, 2021).

Therefore, replacement of the time spent in SB with MPA, VPA or even light-intensity physical activity (LPA) has health benefits (U.S. Department of Health and Human Services, 2018). An excellent start is the replacement of SB with LPA (U.S. Department of Health and Human Services, 2018). Moreover, a short break in SB by performing a moment LPA is already helpful (WHO, 2021).

1.1.2 Incidental physical activity

Physical activity can take place at several short moments throughout the day, named incidental physical activity, or at one longer moment (Queensland Government, 2008). Incidental physical activity is an activity where people do not sweat or are short of breath (World Health Organization, 2020) such as standing, climbing stairs or short walks (Queensland Government, 2008; World Health Organization, 2018; World Health Organization, 2020).

Both forms of physical activity have comparable health benefits, however, a lot of people prefer incidental physical activity over one longer period of physical activity (Queensland Government, 2008). Decreasing SB by promoting and integrating incidental physical activity into daily life helps to gradually increase the amount of physical activity towards the recommended amount of physical activity for health benefits (Queensland Government, 2008; World Health Organization, 2018).

1.1.3 Office environment

The challenge is to achieve a permanent change in physical activity and sedentary behaviour (Gezondheidsraad, 2017). Therefore, physical activity should be integrated into daily life (World Health Organization, 2018). Especially the work environment offers various opportunities to increase daily physical activity (World Health Organization, 2018) because people spend a significant amount of time

in the work environment (Engelen, Dhillon, Chau, Hespe & Bauman, 2016; Foley, Engelen, Gale, Bauman & MacKey, 2016). This is also concluded by the World Health Organization (2018) that states that people must reduce sedentary behaviour and do more physical activity within the work environment.

Particularly office employees spend a lot of time sitting (Duncan, Short, Rashid, Cutumisu, Vandelanotte & Plotnikoff, 2015; Engelen et al., 2016; Fisher, Ucci, Smith, Sawyer, Spinney, Konstantatou & Marmot, 2018) and have low physical activity levels (Fisher et al., 2018). Therefore, it is important to promote physical activity within the office environment (Jancey, McGann, Creagh, Blackford, Howat & Tye, 2016).

1.2 Systematic literature review

As indicated in the previous subsection, one in four adults do not meet the physical activity recommendation and the work environment offers various opportunities to increase physical activity. Because people spend a significant of time in the work environment and especially office employees spend a lot of time in sedentary behaviour and have at the same time low physical activity levels, this study focuses on the reduction of sedentary behaviour and promotion of physical activity within the office environment. Taking into account that (1) people prefer incidental physical activity, (2) replacement of sedentary behaviour by incidental physical activity has health benefits and (3) incidental physical activity like walking and stair climbing are common ways to be physically active within the office environment and have a larger health effect compared to standing, this study focuses on incidental physical activity in terms of walking and stair climbing. A systematic literature review is conducted to identify a research gap in the relation between the office environment and incidental physical activity (figure 1.1).

Figure 1.1 Systematic literature review: the starting point (own figure).

1.2.1 Search strategy

The search terms are based on the search terms used in the systematic literature review of Colenberg, Jylhä & Arkesteijn (2020) which focused on the relation between the interior office space and, among other things, physical wellbeing. They used the following search terms "physical work environment" OR "office environment" OR “office setting” OR “workplace design” OR “office design” OR “office building” AND "health" OR "well-being" OR "wellbeing" OR "musculoskeletal" OR "burnout" OR “stress” (Colenberg et al., 2020).

This study also focuses on the office environment, however, solely on physical wellbeing and not on psychological and social wellbeing. Therefore the search terms "physical work environment", "office environment", “workplace design”, “office design” and “office building” are used in this systematic literature review. The health part of the search terms is translated to terms solely related to physical activity: "active lifestyle" OR "physical activity" OR "physical health" OR "physical well-being" OR "physical wellbeing". This resulted in the following combination of search terms: “Physical work environment" OR "office environment" OR “workplace design” OR “office design” OR “office building” AND "active lifestyle" OR "physical activity" OR "physical health" OR "physical well-being" OR "physical wellbeing" (figure 1.2).

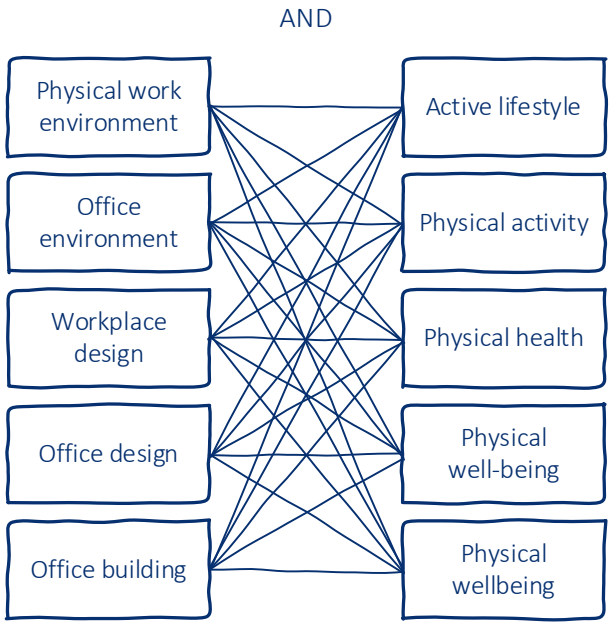

Figure 1.2 Systematic literature review: search terms (own figure).

The database of Scopus is used for the systematic literature review. In Scopus, there is a limited amount of symbols for the search, so there was no possibility to add more search terms like for instance “active design”. However, papers about these types of concepts in relation to physical activity were part of the search results. The search is conducted on May 3, 2020, and resulted in 166 documents on Scopus.

From the 166 papers, the papers about the relation between the office layout and physical activity in terms of walking and stair climbing within the office environment are selected based on the title and abstract. Colenberg et al. (2020, p. 4) made a distinction between two levels of office layout: *“(1) individual workspaces and their physical openness and size; and (2) arrangement of spaces within the office building*”. This research focuses on the second level.

The eight remaining papers about the relation between the arrangement of spaces and physical activity in terms of walking and stair climbing within the office environment are published between 2014 and 2018 with 2016-2017 as the median (Table 1.1). This indicates that this relation is a very recent topic and research in this field is limited.

Title	Author(s)	Year	Journal
Associations between the objectively measured office environment and workplace step count and sitting time: Cross-sectional analyses from the active buildings study	Fisher, Ucci, Smith, Sawyer, Spinney, Konstantatou & Marmot	2018	International Journal of Environmental Research and Public Health
Green Star is not a physical activity star	Creagh, McGann, Tye, Jancey & Babb	2017	Facilities
Perceived office environments and occupational physical activity in office-based workers	Sawyer, Smith, Ucci, Jones, Marmot & Fisher	2017	Occupational Medicine
Is Active Design changing the workplace? – A natural pre-post experiment looking at health behaviour and workplace perceptions	Engelen, Chau, Bohn-Goldbaum, Young, Hespe & Bauman	2017	Work
Workplace building design and office-based workers' activity: A study of a natural experiment	Jancey, McGann, Creagh, Blackford, Howat & Tye	2016	Australian and New Zealand Journal of Public Health
Do active design buildings change health behaviour and workplace perceptions?	Engelen, Dhillon, Chau, Hespe & Bauman	2016	Occupational Medicine
Building spatial layout that supports healthier behavior of office workers: A new performance mandate for sustainable buildings	Hua & Yang	2014	Work
Stationary in the office: Emerging themes for active buildings	Mcgann, Creagh, Tye, Jancey & Blackford	2014	Architectural Science Review

Table 1.1 Research on the relation between the arrangement of spaces and physical activity in terms of walking and stair climbing within the office environment (own table).

1.2.2 Findings

Arrangement of spaces variables

Five papers studied the arrangement of spaces variables and its impact on office employees' physical activity in terms of walking and stair climbing within the office environment (Engelen et al., 2016; Engelen et al., 2017; Fisher et al., 2018; Hua & Yang, 2014; Jancey et al., 2016). In these studies the following arrangement of spaces variables were studied: floor space per person, distances between work station and facilities, distances between work stations, centrality of facilities, centrality of a staircase, amount of alternative routes, amount of levels, visibility of co-workers and workstation 'closeness' (see appendix A.1). In the study of Fisher et al. (2018), only the impact of the arrangement of spaces within the office environment was measured (e.g. Fisher et al., 2018). But in the studies of Engelen et al. (2016, 2017) and Jancey et al. (2016) also other spatial characteristics that may influence office employees' physical activity in terms of walking and stair climbing were included as independent variables like sit-stand desks and the design of staircases. Besides, in some cases it was unclear what was meant by certain independent variables, for instance: "*a layout providing space that facilitated easy movement within the office space*" (Jancey et al., 2016, p. 79).

Floor plans, spatial graphs, trundle wheels, questionnaires and observational measures are used to measure the arrangement of spaces variables (see appendix A.1). Fisher et al. (2018) was the only one who objectively measured the variables related to the arrangement of spaces. In some cases, it is not clear how the variables related to the arrangement of spaces are measured, for instance how the centrality of staircases is measured in the research of Engelen et al. (2017). Moreover, in one study (Jancey et al., 2016), there is no explanation at all on how data on the arrangement of spaces is collected.

In these five papers, the researched office environment included specific floors as well as whole buildings from one or multiple organisations (see appendix A.1).

Physical activity variables

Because this study focuses on physical activity in terms of walking and stair climbing within the office environment, not all physical activity variables that were measured (see appendix A.2) are relevant for this study. The following measured physical activity variables are relevant: steps per working hour, percentage of walking per workday, flights of stairs per day, steps per day, number of times stair use per day and step count per three days.

Both objective (Fisher et al., 2018; Hua & Yang, 2014) and self-reported measures (Engelen et al., 2016; Engelen et al., 2017) are used to measure physical activity (see appendix A.2). Jancey et al. (2016) even used both to measure different types of physical activity. Studies that used self-reported measures stressed the limitation of this type of measure and advise to use objective measurements in further studies to measure incidental physical activity like walking and stair climbing (Engelen et al., 2016; Engelen et al., 2017).

Relation between the arrangement of spaces and physical activity

There is preliminary evidence that the arrangement of spaces influences walking, i.e. office employees' step count (Fisher et al., 2018; Hua & Yang, 2014; Jancey et al., 2016), but not on stair climbing, i.e. flights of stairs (see appendix A.3). Only the studies using self-report surveys to measure physical activity do not indicate a difference in step count (Engelen et al., 2016; Engelen et al., 2017). According to Engelen et al. (2016), it can be that the participants walked more within the office environment but was not reported as walking. Because walking is possibly understood by the participants as restricted to longer distances (Engelen et al., 2017).

In some studies, as already mentioned, also other spatial characteristics (e.g. sit-stand desks and the design of staircases) are measured next to the variables related to the arrangement of spaces (Engelen et al., 2016; Engelen et al., 2017; Jancey et al., 2016). Therefore it is hard to say whether the variables related to the arrangement of spaces influenced step count and/or stair use. Moreover, there is not always an indication whether also workplace culture and policy changed (Engelen et al., 2017) which may also influence step count and/or stair use. As a result, the question arises whether all independent variables are reported which may influence step count and/or stair use in both a positive or negative way.

Nevertheless, there is some indication that the researched variables related to the spatial arrangements of the office environment may influence step count (see appendix A.3). When comparing the results, a larger distance to amenities was associated with a decrease in step count (Fisher et al., 2018; Hua & Yang, 2014) but also with an increase in step count (Jancey et al., 2016). In the study of Jancey et al. (2016), the exact differences in distances or other variables related to the arrangement of spaces were not indicated. So it is hard to say what the effect in step count per additional meter is, like Fisher et al. (2018) measured. Also because Jancey et al. (2016) focused on the effect of a combination of design elements on step count.

Research methods

In the five studies, cross-sectional (Fisher et al., 2018; Hua & Yang, 2014) or pre-post studies (Engelen et al., 2016; Engelen et al., 2017; Jancey et al., 2016) were conducted (see appendix A.5). The number of participants was diverse, ranging from 26 to 131 with an average of 70 participants (see appendix A.5). Fisher et al. (2018) researched 10 different organisations (floors with a different arrangement of

spaces) and included 131 participants. Hua & Yang (2014) researched four different departments (building parts with a different arrangement of spaces) and included 26 participants. This meant on average 13 (Fisher et al., 2018) and 6-7 (Hua & Yang, 2014) participants for each different office environment concerning the arrangement of spaces.

Explanatory research on physical activity outcomes

Just four papers focused on understanding the physical activity outcomes (Creagh et al., 2017; Engelen et al., 2017; Mcgann et al., 2014; Sawyer et al., 2017) which are published between 2014 and 2017 with 2017 as the median (see Appendix A.6). This indicates that also the explanatory research on physical activity outcomes is a very recent topic and research in this field is limited. According to Creagh et al. (2017), studies about physical activity in the work environment isolate the influence of the spatial environment from the social environment. This is also the case in the previously discussed five papers (Engelen et al., 2016; Engelen et al., 2017; Fisher et al., 2018; Hua & Yang, 2014; Jancey et al., 2016).

Qualitative research (observations, photo surveys, focus groups and anecdotal evidence) is mainly conducted to understand physical activity outcomes (Creagh et al., 2017; Engelen et al., 2017; Mcgann et al., 2014). However, also quantitative research (surveys) is conducted for this purpose (Sawyer et al., 2017). See appendix A.6.

Three out of the four papers focused on understanding the social-ecological context (social/cultural, managerial, spatial and personal factors) of physical activity (Creagh et al., 2017; Mcgann et al., 2014; Sawyer et al., 2017) and Engelen et al. (2017) focused solely on the explanation of the environmental effects. See appendix A.6.

1.3 Research problem, questions and aim

As discussed in the previous subsection, there is limited research on the relation between the arrangement of spaces within the office building and employees' incidental physical activity in terms of walking and stairclimbing. Besides, existing research isolates the influence of the spatial environment from the social environment. Thus, also explanatory research in this field is limited.

Therefore, this research focuses not only on the arrangement of spaces but also on other spatial, social and personal factors that influence office employees' incidental physical activity in terms of walking and stair climbing. Besides, employees' physical activity within the home work environment is also studied. This opportunity arose as a result of the COVID-19 pandemic. Accordingly, the main research question is as follows:

> How can the arrangement of spaces within the office building and the home work environment stimulate office employees' incidental physical activity in terms of walking and stair climbing?

In order to answer this main research question, the following sub-questions need to be answered:

> 1 | How physically active are office employees in terms of walking and stair climbing in a different arrangement of spaces within the office building and the home work environment?
>
> 2 | What spatial, social and personal factors support and inhibit walking and stair climbing within a different arrangement of spaces within the office building and the home work environment?

The main aim of this research is to develop an enhanced method to answer these research questions. This method is based on the strengths and limitations of previous studies as briefly examined in chapter 1.2. In this study, the method is tested, refined and retested to advise for further use of the method.

In the next chapter (chapter 2), the developed method is described. In chapter 3, some results about the relation between the work environment and office employees' incidental physical activity produced by the data acquired through the test and retest of the method are presented. In this chapter, the method is also evaluated (results about the method) based on the test and retest and its primary results. In chapter 4, the main strengths and limitations of the research are discussed and also preliminary conclusions are drawn based on the results of the method. The chapter and report end with recommendations for (1) further improvements of the method, (2) further research, and (3) practice to stimulate office employees' incidental physical activity within the work environment.

2 Method

A method is developed to study office employees' physical activity in terms of walking and stair climbing within both the office building and the home work environment based on the findings of the systematic literature review (see chapter 1.2 and appendix A). The study is approved by the Human Research Ethics Committee of the TU Delft.

2.1 Cross-sectional study

Previously, as explained in the introduction (chapter 1.2), cross-sectional and pre-post studies are conducted. The focus of this developed method is a cross-sectional study because a pre-post study can only be done around the move of organisations. A pre-post study is not feasible for graduation researches due to the completion time of such a study. The cross-sectional study is conducted using an explanatory sequential mixed-method research design to answer the research questions. This consists of quantitative research (spatial graph, survey, activity tracker and logbook) followed by qualitative research (focus group). The qualitative research aims to explain the results of the quantitative research.

Also as explained in the introduction (chapter 1.3), the main aim of this research is to develop an enhanced method to assess physical activity in the office environment. Because of this focus, this method is called the office activity assessment method. In this study, this method is tested, refined and retested. For the test and retest of the method office employees of two organisations working in three different offices are studied. For the first test, twenty-three employees of Aestate are studied who worked in an office in Odijk. For the retest, ten employees of draaijer+partners are studied who worked in an office in Utrecht and/or in Groningen. Both participating organisations are real estate advisors. More information about these groups of employees, their home work environments and the offices can be found in chapter 3. In this study, only activity-based work environments are studied.

2.2 Explanatory sequential mixed-method research design

1. Spatial Graph

First, the variables related to the arrangement of spaces are objectively measured by using office floor plans for spatial graphs. Figure 2.1 shows the translation of the floor plan to the spatial graph. Further explanation of the development and use of the spatial graph including the measured arrangement of spaces variables can be found in chapter 2.3.1.

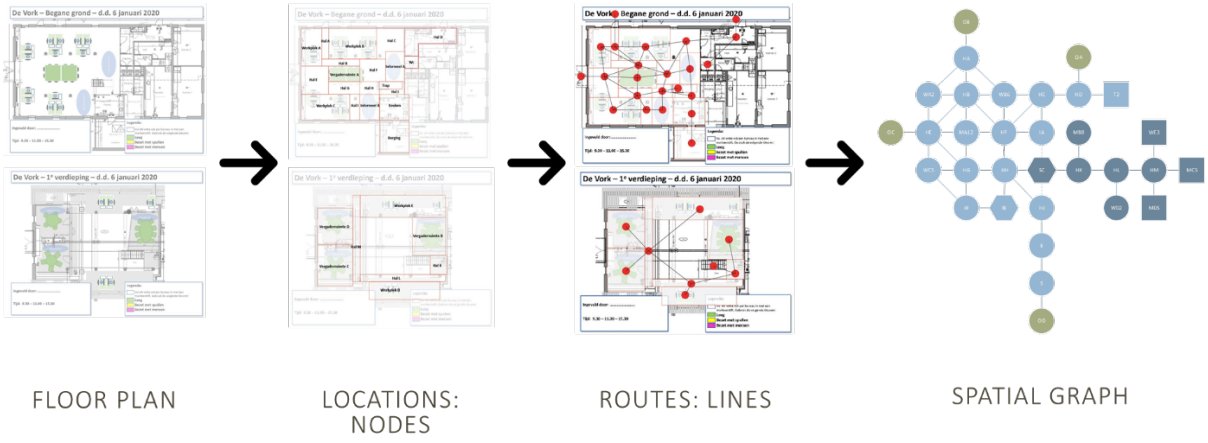

Figure 2.1 Systematic literature review: search terms (own figure).

2. Survey

Secondly, spatial, social and personal characteristics are measured by an online survey to identify factors that support and inhibit walking and stair climbing within the office building and home work environment. Because the employees worked solely or mainly from home due to the COVID-19 pandemic, employees reported their physical activity before the COVID-19 pandemic at the office also in the online survey. Finally, the online survey includes questions related to selection criteria and the informed consent form. The concise survey scheme is shown in table 2.1 and the extensive survey scheme can be found in appendix B.1.

Topics	Variables
1. Target Group, Consent Form & Contact Information	N.A.
2. Personal characteristics • P1: before COVID-19 • P2: during COVID-19 – some office days • P3: during COVID-19 – no office days	• Gender • Age • Length & Weight (BMI) • Education Level
3. Living Situation • P1: before COVID-19 • P2: during COVID-19 – some office days • P3: during COVID-19 – no office days	• Months Living in Dwelling • Dwelling Type • Dwelling Surface • Living Environment • Persons in household
4. Work Situation • P1: before COVID-19 • P2: during COVID-19 – some office days • P3: during COVID-19 – no office days	• Activity Profile • FTE • Managerial role • Organisational attention for health and vitality • Management support for health and vitality • Organisational encouragement of breaks • Months working at the office
5. Movement in general • P1: before COVID-19 • P2: during COVID-19 – some office days • P3: during COVID-19 – no office days	• Total, home and office working days in a week • Days with 30 minutes PA in free time: per week, at home working days and office working days • Perception on the amount of physical activity: in general, home working days and office working days (free time, working hours, commuting and future) • Movement disability • Amount of changes in the workplace when working at home and the office
6. Self-reported activity at the office • P1: before COVID-19 • (P2: during COVID-19 – some office days) • (P3: during COVID-19 – no office days)	• Minutes and percentage of walking during working hours at the office • Perception on more movement at the office compared to home • Minutes more or less at the office compared to home • Minutes of physical activity during commuting to the office • Means of transport to the office
7. Availability, Home Adress, Remarks & Questions	N.A.

Table 2.1 Concise survey scheme (own table).

3. Activity tracker & logbook

Thirdly, employees' step count is objectively measured by using an activity tracker in combination with particular information from the logbook (e.g. work time and location). This is done for five consecutive days (Monday to Friday) during commuting and working hours when working within the home work environment and if applicable within the office building. As a result, the average step count per day per location during working hours could be calculated per participant. During the mentioned period, participants log their stair use and movement patterns and reasons for movement to identify factors that support and inhibit walking and stair climbing within the work environment. In this way, the step count per minute derived from the activity tracker can be connected to each movement destination and reason of movement. Accordingly, the number of steps per movement destination and reason of movement can be determined. Because the employees worked solely or mainly from home due to the COVID-19 pandemic, the employees are asked to log their stair use and movement patterns and reasons for movement of an average office day before the COVID-19 pandemic. Further explanation of the measurement of physical activity including the selection criteria of the activity tracker can be found in chapter 2.3.2. Besides, a detailed instruction on the use of the activity tracker and the logbook is presented in appendix B.2.

4. Focus groups

Finally, two focus groups – one for each organisation – are conducted to understand the quantitative results of previous steps. Besides, the main aim of this step is to identify spatial, social and personal barriers and facilitators for walking and stair climbing within the office building and the home work environment. The participants of the focus groups are mainly selected – if a selection is possible – on their differences in physical activity and general personal characteristics. The addressed topics in the focus groups can be found in appendix B.3 and B.4.

2.3 Further explanation

2.3.1 Arrangement of spaces

As discussed in the introduction (chapter 1.2), Fisher et al. (2018) was the only one who objectively measured the variables related to the arrangement of spaces within the office. They measured these variables by using a floor plan for spatial graphs. In this case, the spatial graph theory of Koutamanis (2019) is used to develop a method to measure the independent variables related to the arrangement of spaces. In this paragraph, the development and use of the spatial graph are explained including the measured arrangement of spaces variables.

Graph | A graph describes *relations* between *things* in a simple and structured way (Koutamanis, 2019). In this case, the graph describes the *routes* between *locations* within the office environment. It consists of *nodes* and *lines* (Koutamanis, 2019). The nodes (vertices) represent things and the lines (edges) represent relations between the things (Koutamanis, 2019). The locations within the office environment are thus represented by nodes and the routes between the locations are represented by lines. The *colour* and *shape* of a node indicate the properties of the node (Koutamanis, 2019) such as the type of location (outside, downstairs or upstairs) and the center or the periphery. The nodes are labelled with their fundamental characteristic (Koutamanis, 2019): the location based on its main activity. For instance halls (H), groups of workplaces (W) and meetings rooms (M). The number refers to the load of the location (e.g. the number of workplaces). Importantly, each node should only occur once and should be connected to all other nodes by a sequence of lines and nodes (Koutamanis, 2019). A sequence of lines and nodes in which a node occurs maximum once is called a path (Koutamanis, 2019). On the next page, you find an example of a spatial graph (figure 2.2).

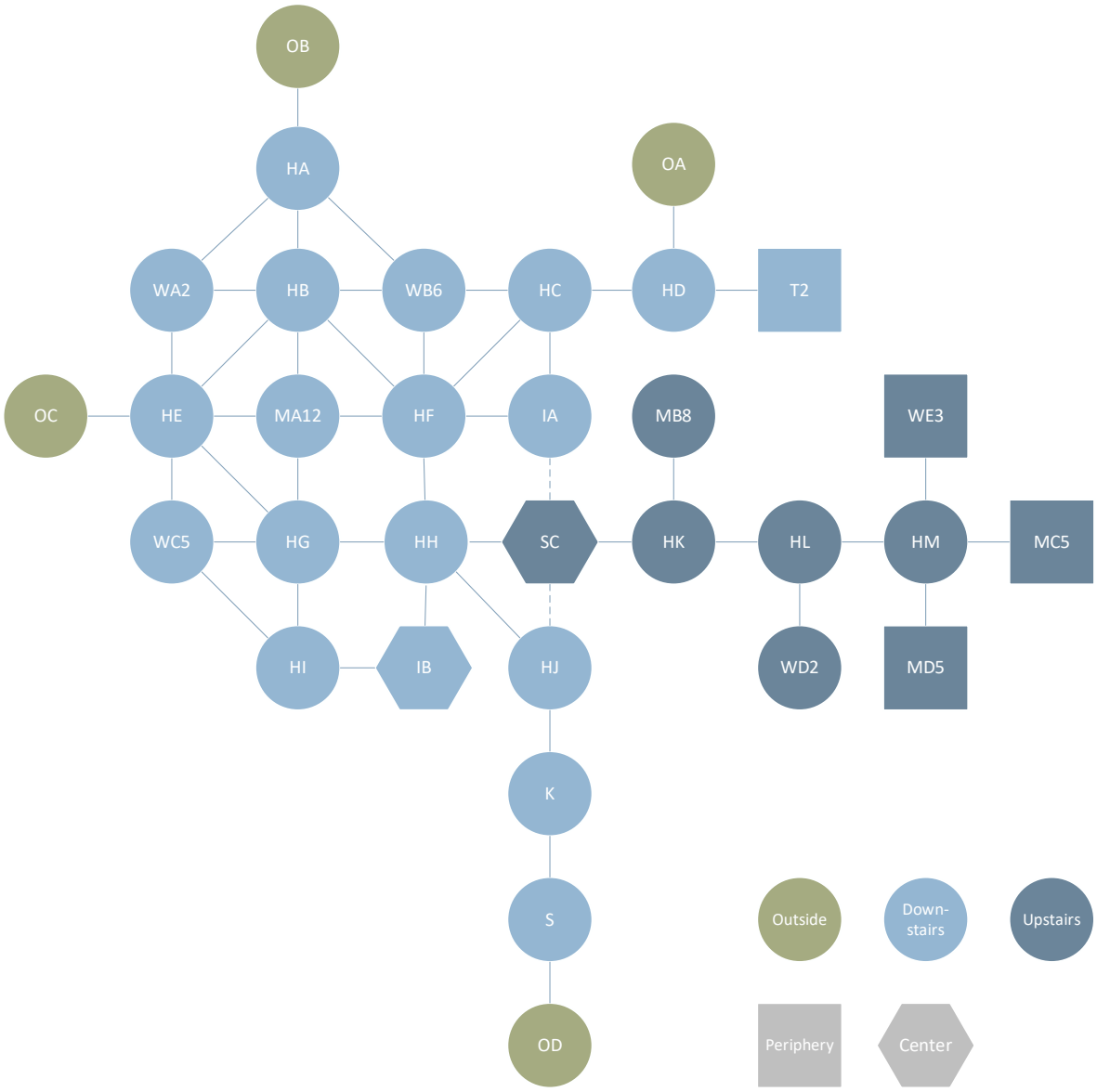

Figure 2.2 Spatial Graph (own figure).

Distance | The *distances* between the locations within the office environment (nodes) can be calculated by using the spatial graph. The distance between two nodes is the *number of lines at the shortest path* between these two *nodes* (Koutamanis, 2019). In this way, the distances of a workplace to other workplaces and key office destinations (KODs) can be determined. For instance, the distance between workplace A (WA2) and the toilet (T2) is 5 lines (see figure 2.2).

Centrality | Based on the distances, the *closeness* (centrality) of a node can be calculated by taking the *mean distance* to other nodes (Koutamanis, 2019). The *centrality* of each group of workplaces and key office destination within the office environment can be calculated. In the example (figure 2.2), the centrality of the staircase (SC) is 3,4. In other words, the mean distance from the staircase to all the other locations within the office environment is 3,4 lines. The centrality of a location can relate to all the other locations but also to only certain types of locations. For instance, the centrality of a group of workplaces to only the key office destinations. Thus excluding the distances to other groups of workplaces. In addition, the mean centrality of a particular type of location can be established to other (types of) locations. For instance, the mean centrality of all the groups of workplaces to the key office destinations is in the example 4,9 lines (figure 2.2).

Center & Periphery | Also the *eccentricity* of each location can be determined based on the distances. It's the greatest distance between a node and the other nodes (Koutamanis, 2019). In the example (figure 2.2), the eccentricity of the staircase (SC) is 6 lines. The greatest distance from the staircase is to the toilet (T2) which is 6 lines. Based on the *eccentricity* of each location, the *center* and the *periphery* of the office can be determined. The center is or are the node(s) with the smallest eccentricity and the periphery is or are the node(s) with the greatest eccentricity (Koutamanis, 2019). In the example (figure 2.2), the staircase (SC) and informal B (IB) have the smallest eccentricity (6 lines) and workplace E (WE3), meeting room C (MC5) and D (MD5) and the toilet (T2) have the greatest eccentricity (9 lines). The smallest eccentricity is the *radius* of the graph and the greatest eccentricity is the *diameter* of the graph (Koutamanis, 2019). The radius and the diameter of the office in the example (figure 2.2) are thus 6 and 9 respectively.

Degree | Finally, the *degree* of a node can be calculated by using the spatial graph. It's the *number of lines connected* to the node and represents how *busy* a node might be (Koutamanis, 2019). In this case, how busy a location might be. In the example (figure 2.2), the location with the highest degree, excluding the halls (H), are workplace B (WB6) and meeting room A (MA12) with a degree of 4. These locations might be the busiest locations within the office excluding the halls. The *degree sequence* is the sum of the degrees of all the nodes on the path and represents how busy the path might be (Koutamanis, 2019).

Not all the previously researched variables (appendix A.1) related to the arrangement of spaces can be objectively measured by solely a spatial graph. For instance, Fisher et al. (2018) measured the variable "visibility of co-workers" by using a spatial graph. But they also observed the visuals barriers during a site audit to be able to measure this variable. As this variable can't be measured by solely the spatial graph, this variable is excluded in this study. The previously studied variables that can be objectively measured by solely a spatial graph are researched in this study: distances between (groups of) workplaces and key office destinations (KODs), distances between (groups of) workplaces, centrality of KODs, staircases and (groups of) workplaces. In addition to the previously studied variables, this study also measured the center and periphery of the offices including its radius and diameter. Besides, how busy groups of workplaces and KODs might be is studied based on the degrees of locations.

Fisher et al. (2018) measured also the distances between each workplace and each key office destination (KODs), the distances between each workplace and each other workplace, and the centrality of the workplaces to all the other office locations by a spatial graph. But they did not measure the other previously studied variables related to the arrangement of spaces as just described by the spatial graph (the centrality of KODs and staircases).

In this study, the distances are measured in 'lines', assuming that the length of the lines is comparable with each other within and between offices. Each 'line' represents the same distance in meters. Fisher et al. (2018) measured the distances in both meters and lines which consumes more time. Besides, the distance in meters is not necessary at this required abstraction level.

2.3.2 Physical activity

As explained in the introduction (chapter 1.2), in previous studies the dependent variable walking was measured in steps (Fisher et al., 2018; Hua & Yang, 2014; Jancey et al., 2016) but also in percentage of walking (Engelen et al., 2016; Engelen et al., 2017). It varied between steps or percentage per hour (Fisher et al., 2018), per day (Engelen et al., 2017; Engelen et al., 2016; Jancey et al., 2016) and even per three days (Hua & Yang, 2014). Stair climbing was not measured in the cross-sectional studies of Fisher et al. (2018) and Hua & Yang (2014). The others (Engelen et al., 2016; Engelen et al., 2017;

Jancey et al., 2016) measured the number of times stair use per day. In this study, the average step count and stair use per day per participant is measured.

The steps were measured by accelerometers (Fisher et al., 2018; Hua & Yang, 2014; Jancey et al., 2016) for three consecutive workdays (Fisher et al., 2018; Hua & Yang, 2014) or five consecutive workdays from Monday to Friday (Jancey et al., 2016). The percentage of walking (Engelen et al., 2016; Engelen et al., 2017) and the number of times stair use (Engelen et al., 2016; Engelen et al., 2017; Jancey et al., 2016) were measured by an online survey. Due to the limitation of self-reported measures stressed by Engelen et al. (2016) and Engelen et al., (2017), office employees' steps are measured objectively by an activity tracker in combination with a logbook and stair use is logged by the participants as explained in chapter 2.2. The longest measurement period of previous studies is applied: five consecutive workdays (Monday to Friday).

Because the employees worked solely or mainly from home at the time of the study due to the COVID-19 pandemic, employees reported their minutes and percentage of walking at the office in an online survey and logged their stair use of an average office day as already explained in chapter 2.2. The activity tracker in combination with a logbook is still used to measure office employees' step count and stair use within the home work environment and the few days that just some employees worked at the office.

The participants needed to wear the same type of activity tracker to be able to compare the steps. The Xiaomi Mi Band 4 is used to measure office employees' steps. The twenty-five activity trackers were paid by the company Aestate, which was also one of the participating companies. This specific type of activity tracker was chosen because of multiple reasons. The main reason was the possibility to export the steps per minute to determine the number of steps per movement destination and reason of movement which were logged by the participants. Another important aspect was the battery duration, which had to be more than the measurement period of five consecutive days. Preferably even more, so that the participants didn't have to charge the battery themselves. The Xiaomi Mi Band 4 has a battery lasting for at least 20 days. This activity tracker was also easy to wear as it is a bracelet and the data could be deleted by the participants afterwards. Moreover, the Xiaomi Mi Band 4 was extremely cheap compared to alternative activity trackers (€21,50). The beforehand known limitations of this activity tracker were that participants needed to download the Mi Fit App, had to create an account, connect their activity tracker with the Mi Fit App and had to export and delete their activity data themselves. The app was compatible with both iOS and Android.

In the week before the measurement, the participants received the activity tracker by post and the instructions of the activity tracker and the logbook by mail (see appendix B.2).

3. Results

In this chapter, some results about the relation between the work environment and office employees' incidental physical activity produced by the data acquired through the test and retest of the method are shown (chapter 3.1-3.5). In addition, the method is evaluated (results about the method) based on the test and retest and its primary results (chapter 3.6).

3.1 Physical activity

3.1.1 Home (during the COVID-19 pandemic)

Physical activity during working hours

The activity trackers showed that employees of draaijers+partners took 1950 steps a day at home during working hours, which is slightly more than the employees of Aestate took (M = 1864). These steps roughly correspond with respectively 20 and 19 minutes of walking. The 19 and 20 minutes correspond with respectively 63% and 67% of the recommended 30 minutes of physical activity a day. There was a larger difference between employees of Aestate as the minimum is 617 steps and maximum 5012 (SD = 1387) than between employees of draaijer+partners as the minimum is 1249 steps and maximum is 2826 steps (SD = 584). See figure 3.1.

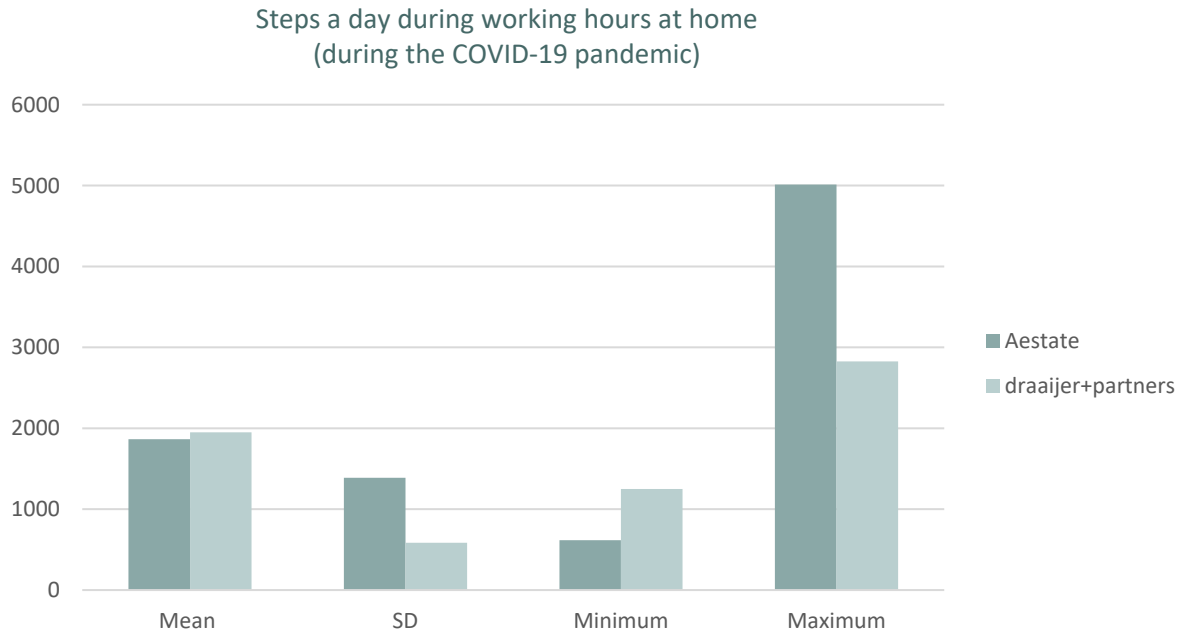

Figure 3.1 Steps a day during working hours at home (during the COVID-19 pandemic) measured with the activity trackers (own figure).

The employees of draaijer+partners not only took slightly more steps, but they also climbed more stairs than the employees of Aestate, respectively eight and five stairs according to the completed

logbooks. However, the difference is slightly larger between employees of draaijer+partners than between the employees of Aestate. The minimums are one and zero, and the maximums are 23 and 21 respectively.

Besides, the employees of draaijer+partners made more trips (M = 17) compared to the employees of Aestate (M = 15) according to the activity tracker and the completed logbooks. Again, the difference is larger between the employees of draaijer+partners with a minimum of eight and a maximum of twenty-two. The amount of trips made by the employees of Aestate lies between the nine and twenty-one trips. Although the employees of Aestate made on average fewer trips, they walked at least nine times compared to the eight times of draaijer+partners.

For more detailed information about employees' physical activity a day during working hours at home in the period during the COVID-19 pandemic see appendix C.1.

The respondents indicated in the survey whether they move a lot during working hours at home during the COVID-19 pandemic (since October 2020) at the time of the measurement. The majority of the employees strongly disagreed or disagreed to move a lot during working hours at home during the COVID-19 pandemic (since October 2020): 83% of Aestate's employees and 90% of draaijer+partners' employees. Only one employee of Aestate agreed to move a lot and while the maximum step count was 5012, no one strongly agreed with the statement. No employee of draaijer+partners strongly agreed or agreed with the statement. The perception of both groups of employees is very similar as well as the average step count. See figure 3.2.

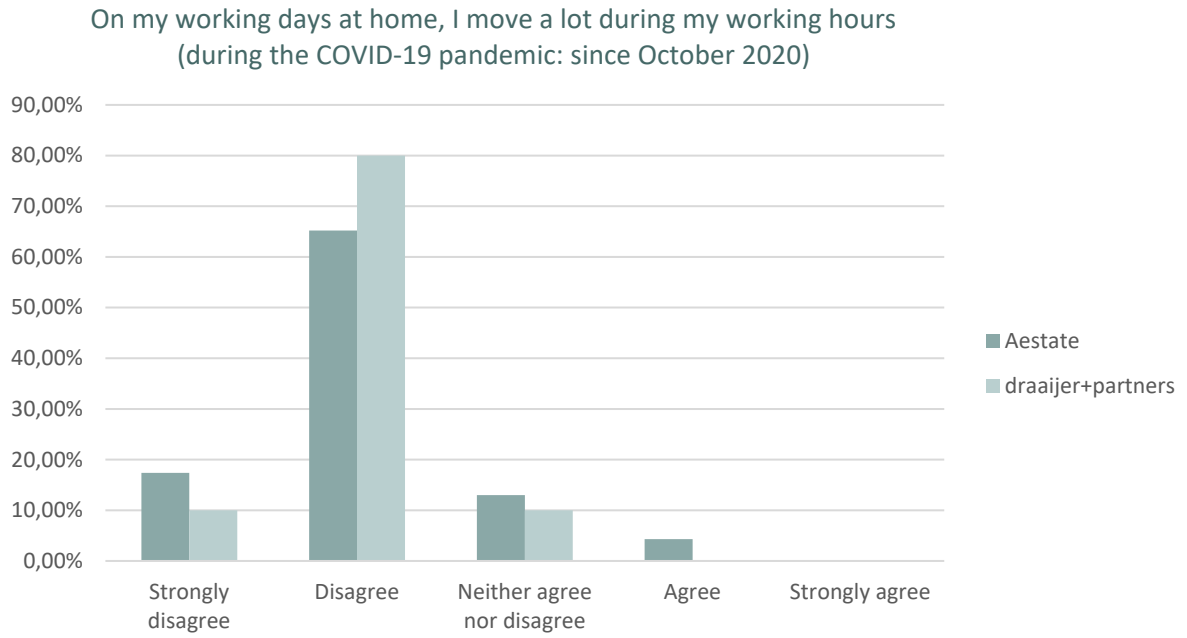

Figure 3.2 Perceived physical activity during working hours at home (during the COVID-19 pandemic: since October 2020) measured with the survey (own figure).

The respondents also indicated in the survey whether they moved a lot during working hours at home before and during the COVID-19 pandemic (June till September 2020). In the following paragraphs, the perceived physical activity during working hours at home *during* the COVID-19 pandemic (*since October 2020*) is compared with the perceived physical activity during working hours at home *during* (*June till September 2020*) and *before* the COVID-19 pandemic.

Compared to the period when employees were only allowed to work at the office in special cases (since October 2020), slightly fewer employees of *Aestate* strongly disagreed or disagreed with the statement concerning the period when employees were allowed to work structurally a limited amount of days a week at the office (June till September 2020). Concerning the period between June till September, 78% strongly disagreed or disagreed. However, slightly more employees strongly disagreed with the statement (+4%). Also, slightly more employees agreed with the statement (+4%) and therefore the difference between employees was larger in the period between June till September 2020.

Also, fewer employees of *draaijer+partners* strongly disagreed or disagreed with the statement concerning the period between June and September compared to the period since October 2020. Concerning the period between June till September 2020, 75% strongly disagreed or disagreed. More employees agreed with the statement (+13%) and therefore, also in this case, the difference between employees was larger in the period between June till September compared to the period since October 2020.

Concerning the period before the COVID-19 pandemic, slightly fewer employees of *Aestate* strongly disagreed or disagreed with the statement compared to the period since October 2020. Concerning the period before the COVID-19 pandemic, 73% strongly disagreed or disagreed. However, more employees strongly disagreed with the statement (+19%) and therefore the difference between employees was larger in the period before the COVID-19 pandemic.

Also, fewer employees of *draaijer+partners* strongly disagreed or disagreed with the statement concerning the period before the COVID-19 pandemic compared to the period since October 2020. Concerning the period before the COVID-19 pandemic, 67% disagreed and no one strongly disagreed. The other 33% strongly agreed with the statement and therefore, also in this case, the difference between employees was larger in the period before the COVID-19 pandemic compared to the period since October 2020.

For an overview of employees' perceived physical activity at home during working hours in the periods before and during the COVID-19 pandemic see appendix C.2.

Future

In all the cases, the majority of the employees indicated to want to move more in the future during working days at home (see figure 3.3 and appendix C.5). From the employees working for Aestate and draaijer+partners, respectively 87% and 90% strongly agreed or agreed with the statement. No one strongly disagreed or disagreed with the statement.

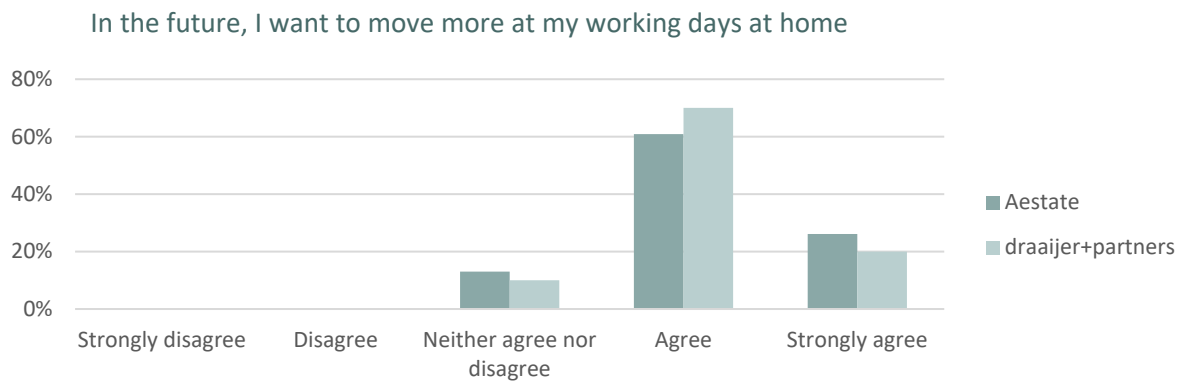

Figure 3.3 Employees' willingness to move more at working days at home measured with the survey (own figure).

3.1.2 Office (before the COVID-19 pandemic)

Physical activity during working hours

The employees who worked at the office in Groningen indicated in the survey to walk the most minutes (M = 35) compared to the employees who worked at the office in Odijk and Utrecht (M = 23). The 23 and 35 minutes correspond with respectively 77% and 117% of the recommended 30 minutes of physical activity a day. Although the employees who worked in the office in Odijk walked on average less than the employees who worked in the office in Groningen, in the office in Odijk all the employees indicated to walk 10 minutes or more compared to the four minutes in both the office in Utrecht and Groningen. The largest difference between employees is in the office in Groningen. See figure 3.4.

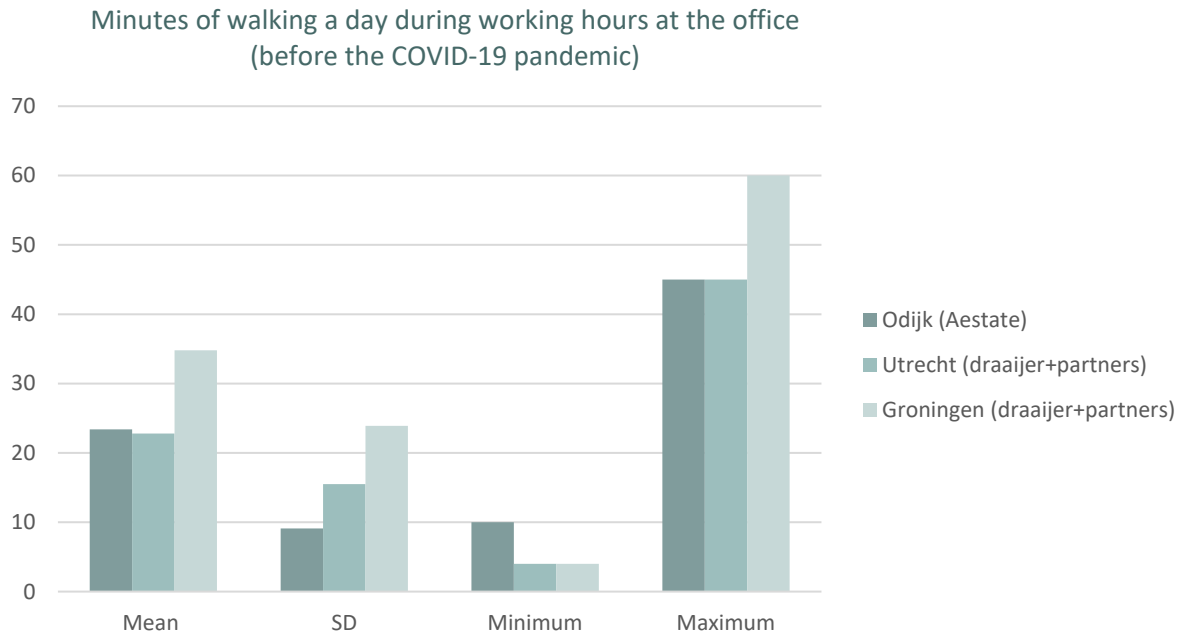

Figure 3.4 Minutes of walking a day during working hours at the office (before the COVID-19 pandemic) measured with the survey (own figure).

The indicated percentage of walking in the survey gives other insights (see figure 3.5). Whereas the employees who worked at the office in Odijk indicated to walk slightly more minutes than the employees who worked at the office in Utrecht, 23,4 and 22,8 respectively, they indicated to walk slightly less in percentage than the employees who worked at the office in Utrecht, 6,1% and 6,8% respectively. And, while the difference between employees in minutes walked was the lowest in Odijk, the difference in percentage walked was the highest in Odijk with a minimum of one and a maximum of thirty per cent.

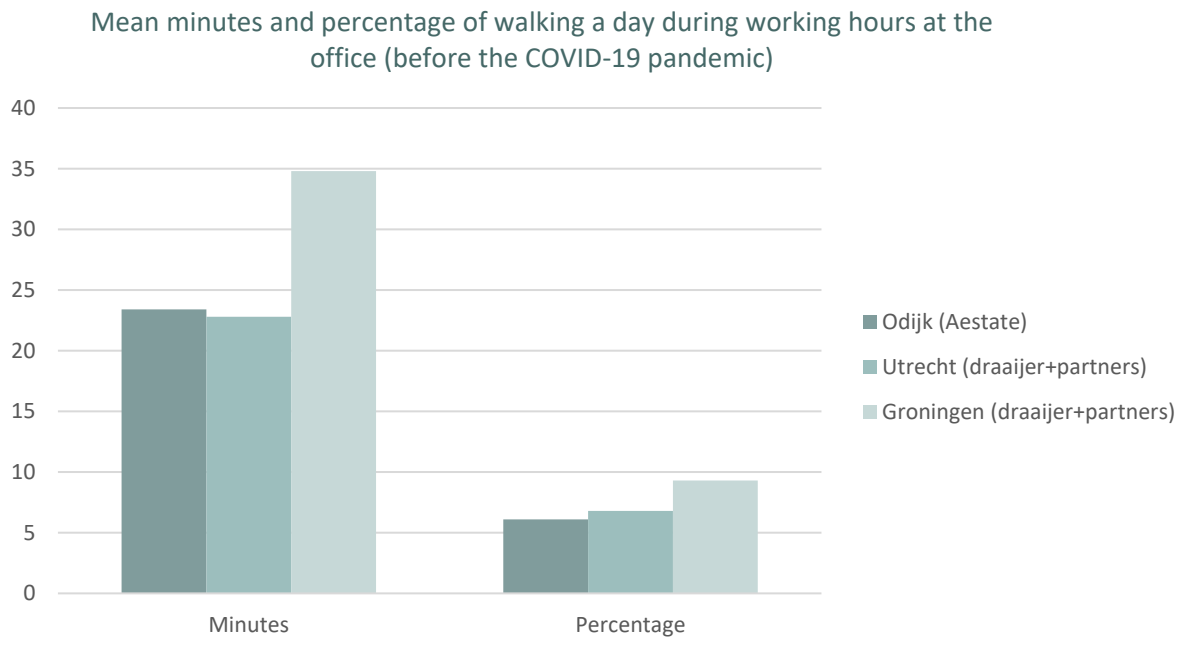

Figure 3.5 Mean minutes and percentage of walking a day during working hours at the office (before the COVID-19 pandemic) measured with the survey (own figure).

Although most walking took place at the office in Groningen, the least stairs were climbed in this office (M = 2) according to the completed logbooks. Most stairs were climbed in the office in Odijk (M = 5). However, the differences between employees who worked in the office in Odijk is larger as the minimum is two and the maximum is twelve times.

Even though the employees who worked in the office in Odijk walked less than the employees who worked in Groningen, they indicated to make about the same amount of trips according to the completed logbooks, twenty-one and twenty trips respectively. And, while the employees who worked in the office in Odijk indicated to walk the same amount of minutes as the employees who worked in the office in Utrecht, they indicated to make more trips, twenty-one and fourteen trips respectively. In both the offices, Odijk and Utrecht, the differences between employees are large regarding the number of trips. In Utrecht, the range is eleven and in Odijk it is even twenty-three.

For more detailed information about employees' physical activity a day during working hours at the office in Odijk, Utrecht and Groningen in the period before the COVID-19 pandemic see appendix C.6.

The respondents indicated in the survey whether they moved a lot during working hours at the office before the COVID-19 pandemic. From the employees who worked in the office in Odijk, Utrecht and Groningen, respectively 15%, 14% and 33% agreed to move a lot during working hours at the office before the COVID-19 pandemic. This corresponds with the indicated average amount of minutes walked as the employees who worked in the office in Groningen indicated to walk more minutes at the office than the employees who worked at the office in Odijk and Utrecht. In all cases, no employee strongly agreed with the statement concerning the period before the COVID-19 pandemic. In the office in Odijk, most employees neither agreed nor disagreed (45%). This percentage is a lot lower for the employees who worked at the office in Utrecht and Groningen, 14% and 17% respectively. In the office in Utrecht, most employees disagreed with the statement (57%). This percentage is a lot lower for the employees who worked at the office in Odijk and Groningen, 30% and 33% respectively. This does not correspond with the indicated average amount of minutes walked as the employees who worked in the office in Odijk indicated to walk about the same amount of minutes as the employees

who worked at the office in Utrecht. In all cases, about the same percentage of employees strongly disagreed. See figure 3.6.

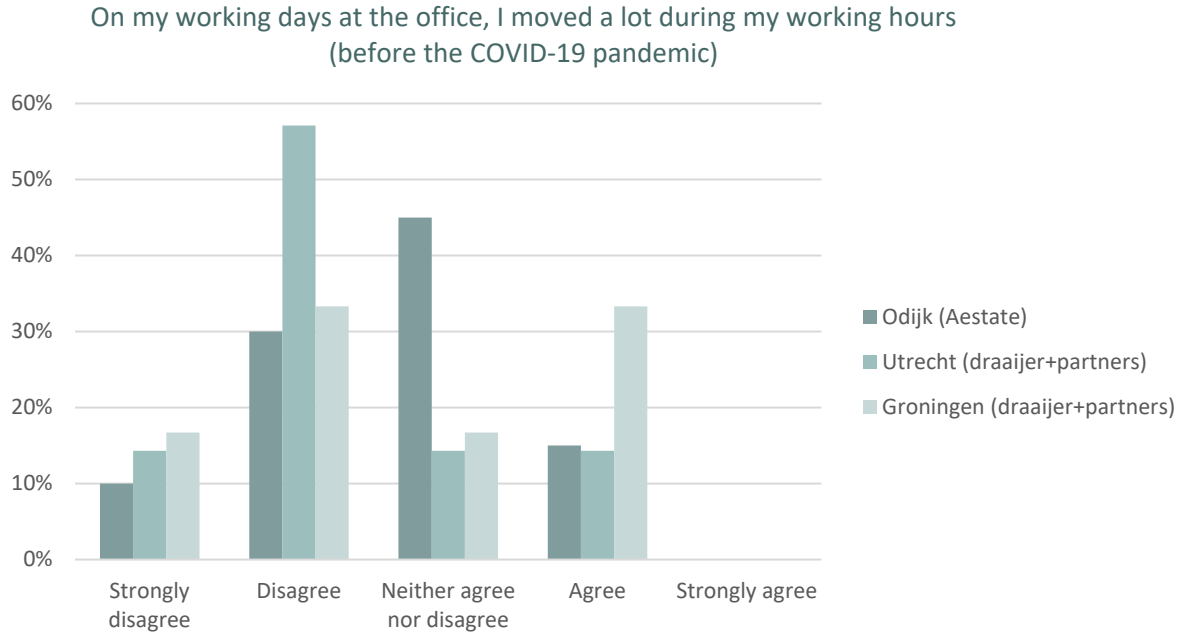

Figure 3.6 Perceived physical activity during working hours at the office (before the COVID-19 pandemic) measured with the survey (own figure).

The respondents also indicated in the survey whether they move(d) a lot during working hours at the office during the COVID-19 pandemic. In the following paragraphs, the perceived physical activity during working hours at the office *before* the COVID-19 pandemic is compared with the perceived physical activity during working hours at the office *during* the COVID-19 pandemic.

Compared to the period before the COVID-19 pandemic, more employees who worked at the office in *Odijk* disagreed or strongly disagreed with the statement concerning the period during the COVID-19 pandemic (June till September 2020) when employees were allowed to work structurally a limited amount of days a week at the office. In the period before the COVID-19 pandemic, 40% disagreed or strongly disagreed and in the period during the COVID-19 pandemic (June till September 2020) 48% disagreed or strongly disagreed. However, in the period during the COVID-19 pandemic, there is a larger difference between employees. More people strongly disagreed or strongly agreed with the statement. In the period before the COVID-19 pandemic, 10% strongly disagreed or strongly agreed and in the period during the COVID-19 pandemic (June till September 2020) 22% strongly disagreed or strongly agreed. As no one worked at the office in Odijk since October 2020, the statement about this period was excluded from the questionnaire.

Compared to the period before the COVID-19 pandemic, a smaller part of employees who worked at the office in *Utrecht* strongly disagreed (-14%) and a larger part of employees agreed (+14%) with the statement concerning the period during the COVID-19 pandemic (June till September 2020). And, there is a smaller difference between employees. Some fewer people strongly disagreed or strongly agreed with the statement (-14%). The amount of movement was not the same in the period during the COVID-19 pandemic (since October 2020) when employees were only allowed to work at the office in special cases. Compared to the period before the COVID-19 pandemic, a larger part of employees strongly disagreed (+19%) and therefore there is a larger difference between employees.

Compared to the period before the COVID-19 pandemic, no employee who worked at the office in *Groningen* strongly agreed or agreed anymore (-33%) with the statement concerning the period during the COVID-19 pandemic (June till September 2020) and therefore the difference between employees became smaller. The amount of movement was not the same in the period during the COVID-19 pandemic (since October 2020). Compared to the period before the COVID-19 pandemic, a larger part of employees disagreed with the statement (+27%) and therefore the difference between employees is smaller than the period.

While more employees who worked at the office in Odijk and Groningen disagreed or strongly disagreed with the statement concerning the period during the COVID-19 pandemic compared to the period before, fewer employees who worked at the office in Utrecht did. Employees moved slightly less in the offices in Odijk and Groningen and employees moved slightly more in the office in Utrecht in the period during the COVID-19 pandemic (June till September) compared to the period before the COVID-19 pandemic. Also, the difference between employees became larger in the office in Odijk and smaller in the office in Utrecht and Groningen. An adversative small effect took place comparing the office in Odijk and Utrecht. In the other period during the COVID-19 pandemic (since October 2020), a larger part of employees disagreed or strongly disagreed with the statement compared to the period before the COVID-19 pandemic. The difference between employees became larger in the office in Utrecht and smaller in the office in Groningen.

For an overview of employees' perceived physical activity at the office in Odijk, Utrecht and Groningen during working hours in the periods before and during the COVID-19 pandemic see appendix C.7.

Commuting

While the employees who worked at the office in Groningen indicated in the survey to walk the most minutes during working hours at the office, they indicated in the survey to move the least minutes during commuting (M = 1,2). The employees who worked at the office in Odijk and Utrecht moved 14 and 8 minutes respectively during commuting. However, the difference between employees who worked in the office in Odijk is larger as the minimum is zero and the maximum is 140 minutes. The difference between employees who worked in the office in Groningen is very small as the minimum is zero and the maximum is five minutes. For an overview of employees' physical activity during commuting in the period before the COVID-19 pandemic see appendix C.8.

The respondents indicated in the survey whether they moved a lot during commuting before the COVID-19 pandemic. From the employees who worked in the office in Odijk, Utrecht and Groningen, respectively 15%, 14% and 0% strongly agreed or agreed to move a lot during commuting before the COVID-19 pandemic. Respectively 85%, 71% and 83% strongly disagreed or disagreed with the statement. This partly corresponds with the indicated average amount of physical activity during commuting. The employees who worked at the office in Groningen moved the least and accordingly no employee strongly agreed or agreed with the statement. Although the employees who worked at the office in Odijk moved more than the employees who worked at the office in Utrecht, no more employees strongly agreed or agreed with the statement. Moreover, the employees who worked at the office in Odijk strongly disagreed or disagreed the most with the statement. This could be because of the large difference between employees who worked at the office in Odijk.

The respondents also indicated in the survey whether they move(d) a lot during commuting during the COVID-19 pandemic. In the following paragraphs, the perceived physical activity during commuting *before* the COVID-19 pandemic is compared with the perceived physical activity during commuting *during* the COVID-19 pandemic.

The amount of physical activity during commuting to the office in *Odijk* did change. Although the percentage of employees who disagreed or strongly disagreed is more or less the same in the period during the COVID-19 pandemic (June till September 2020) (83%) compared to before the COVID-19 pandemic (85%), more employees disagreed (48%) than strongly disagreed (35%) with the statement. Before the COVID-19 pandemic, this was the other way around: 35% disagreed and 50% strongly disagreed. This indicates that some employees moved more during commuting in the period during the COVID-19 pandemic than before. On the other hand, some employees moved less during commuting as there are fewer employees who strongly agreed or agreed with the statement: 15% before the COVID-19 pandemic and 4% during. As a consequence, the difference between employees became smaller.

The amount of physical activity during commuting to the office in *Utrecht* did change a little. Compared to the period before the COVID-19 pandemic, a smaller part of employees strongly disagreed (-14%) and a larger part disagreed (+14%). As a consequence, the difference between employees became slightly smaller. The amount of movement was not the same in the period during the COVID-19 pandemic (since October 2020) when employees were only allowed to work at the office in special cases. Compared to the period before the COVID-19 pandemic, a larger part of employees strongly agreed or agreed with the statement (+19%) and therefore the difference between employees became slightly larger.

The amount of physical activity during commuting to the office in *Groningen* did not change when comparing the period before the COVID-19 pandemic and during were allowed to work structurally a limited amount of days a week at the office (June till September 2020). However, it did change a little when comparing the period before the COVID-19 pandemic and during when employees were only allowed to work at the office in special cases (since October 2020). All employees strongly disagreed or disagreed with the statement concerning the period since October 2020 (100%) compared to the 83% before the COVID-19 pandemic and therefore the difference between employees became smaller.

While the physical activity during commuting to the office in Odijk changed in both a positive and negative way concerning the period during the COVID-19 pandemic (June till September 2020) compared to the period before, the physical activity during commuting to the office in Utrecht changed slightly in a positive way and the physical activity during commuting to the office in Groningen did not change. However, for both the office in Odijk and Utrecht the difference between employees became (slightly) smaller. In the other period during the COVID-19 pandemic (since October 2020), the physical during commuting to the office in Utrecht changed in a positive way and the physical activity during commuting to the office in Groningen in a negative way. The difference between employees became slightly larger during commuting to the office in Utrecht and smaller to the office in Groningen. An adversative effect took place comparing the physical activity during commuting to the office in Utrecht and Groningen.

For an overview of employees' perceived physical activity during commuting in the periods before and during the COVID-19 pandemic see appendix C.9.

Future

In all the cases, the majority of the employees indicated to want to move more in the future during office days (see figure 3.7 and appendix C.12). From the employees who worked in the office in Odijk, Utrecht and Groningen, 83%, 90% and 86% respectively strongly agreed or agreed with the statement. In all cases, no one strongly disagreed with the statement, and in Utrecht, no one disagreed.

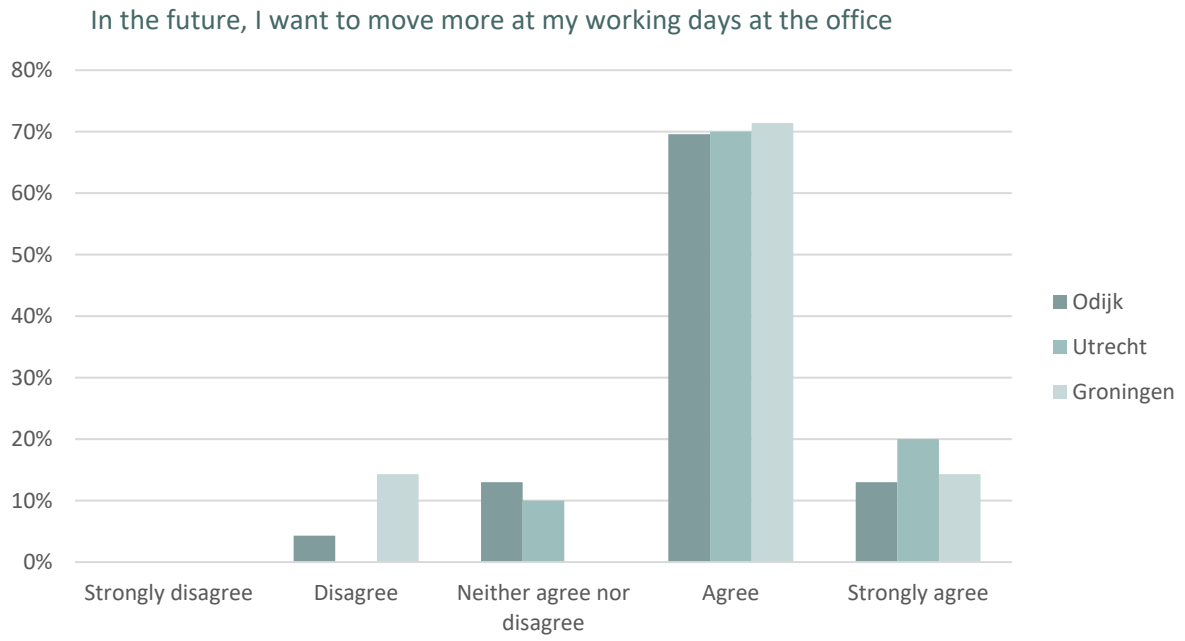

Figure 3.7 Employees' willingness to move more at working days at the office in Odijk, Utrecht and Groningen measured with the survey (own figure).

3.1.3 Home vs. Office

As indicated in chapter 3.1.2, the employees who worked at the office in Odijk, Utrecht and Groningen indicated to walk on average respectively 23,4, 22,8 and 34,8 minutes during working hours at the office. And, as indicated in chapter 3.1.1, the employees of Aestate and draaijer+partners walked on average respectively 18,6 and 19,5 minutes during working hours at home. So all the groups of employees walked on average more at the office than at home during working hours. The employees of Aestate walked on average 5 minutes more at the office in Odijk. The employees of draaijer+partners walked on average 3 minutes more at the office in Utrecht and 15 minutes more at the office in Groningen. This corresponds with respectively 17%, 10% and even 50% of the recommended 30 minutes of physical activity a day. Moreover, the employees moved respectively 13,8, 8,3 and 1,2 minutes during commuting to the office in Odijk, Utrecht and Groningen. This corresponds with respectively 46%, 28% and 4% of the recommended 30 minutes of physical activity a day.

Although employees walked on average more minutes at the office, the same or more stairs were climbed on average during working hours at home. The employees of Aestate climbed on average the same amount of stairs. The employees of draaijer+partners climbed on average 6 stairs more during working hours at home than at both the office in Utrecht and Groningen. However, this does not hold for the number of trips made. Not all groups of employees made more trips at home than at the office during working hours. The employees of Aestate made on average six trips more at the office in Odijk. The employees of draaijer+partners made on average 3 trips less at the office in Utrecht and 3 trips more at the office in Groningen.

However, as discussed earlier, the differences between employees are large. Whereas one employee walked 23 minutes more at the office in Odijk than at home during working hours, another employee walked 12 minutes less (see appendix C.13). This corresponds with their perception (see figure 3.8 and appendix C.14). About half of the employees who worked at the office in Odijk strongly agreed or agreed to move more at the office than at home (45%) and about half of the employees disagreed

with the statement (45%). No employee strongly disagreed. The difference between employees of draaier+partners who worked at the office in Groningen is even larger. Whereas one employee walked 32 minutes more at the office in Groningen, another employee walked 14 minutes less (appendix C.13). This does not correspond with their perception (see figure 3.8 and appendix C.14) as most employees strongly disagreed or disagreed with the statement (86%) and only one employee agreed (14%). The difference between employees of draaijer+partners who worked at the office in Utrecht is small. Whereas one employee walked only 2 minutes more at the office in Utrecht, another employee walked 14 minutes less (appendix C.13). This partly corresponds with their perception (see figure 3.8 and appendix C.14) as no employee strongly agreed with the statement. Half of the employees agreed with the statement and half of the employees strongly disagreed or disagreed. In appendix C.13 the difference in walking of employees who both indicated in the survey their minutes of walking at the office before the COVID-19 pandemic and wore the activity tracker during working hours at home during the COVID-19 pandemic is shown.

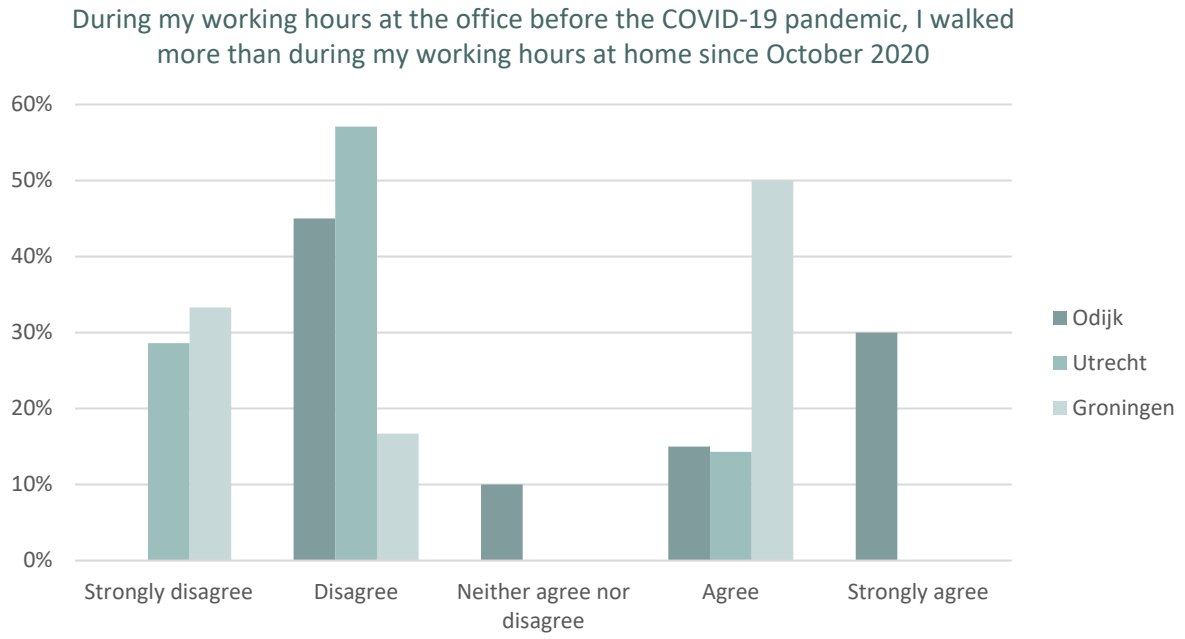

Figure 3.8 Perceived differences in walking during working hours between at the office in Odijk, Utrecht and Groningen and home working for Aestate and draaijer+partners measured with the survey (own figure).

Some employees of Aestate indicated in the survey how many minutes more they walked at the office than at home. This was on average 21 minutes more, with a minimum of ten and a maximum of thirty minutes (see appendix C.13). Also, some employees indicated how much fewer minutes they walked which was on average 22 minutes, with a minimum of fifteen and a maximum of thirty (see appendix C.13). These maximums do not correspond with the maximum differences discussed in the previous paragraph because these are a lot more minutes.

Concerning the employees of Aestate, the employees who move more at the office in Odijk do not necessarily move more at home during working hours ($r = 0.448$, $p = 0{,}125$, $n = 13$). However this is true for the employees of draaijer+partners who worked at the office in Utrecht ($r = 0.999$, $p = 0.034$, $n = 3$) and Groningen ($r = 1.000$, $p = 0.000$, $n = 2$). See appendix C.15.

3.2 Movement patterns and reasons

3.2.1 Home (during the COVID-19 pandemic)

Reasons for movement

Within the home work environment, the employees of *Aestate* indicated in their logbooks to move the most times for toileting (M = 2,3) and getting a drink (M = 2,3). The employees of Aestate also moved frequently for installing at workplace (M = 1,3) and general office work (M = 1,9). Employees move less frequent for lunch break (M = 0,7), online: planned meeting (M = 0,9), getting food (M = 0,6). The other reasons for movement were mentioned fewer times or even no times at all (M ≤ 0,3).

The employees of Aestate took the most steps for a walk outside (M = 676), which is a lot more than for other reasons for movement according to the activity trackers and the logbooks. For lunch break, they take on average 274 steps. Also, toileting (M = 106) and getting a drink (M = 125) are reasons which cause a considerable amount of steps. Some reasons caused on average less amount of steps: getting food (M = 50), online: planned meeting (M = 55), telephoning (M = 38), taking a break (M = 30) and cycling outside or something like that (M = 78). The other reasons caused five or fewer steps on average.

Although the employees of Aestate moved the same amount of times for toileting as for getting a drink (M = 2,3), getting a drink caused more steps (M = 125) than toileting (M = 106). This might be because the toilets are closer to employees' workplaces than the kitchen and/or getting a drink requires more steps at the location. The employees moved on average only 0,7 times for a lunch break, but it caused a considerable amount of steps (M = 274). This also holds for a walk outside which is mentioned on average 0,4 times but caused on average a lot of steps compared to other reasons (M = 676).

The employees of *draaijer+partners* indicated to move the most times for getting a drink (M = 2,4) and moved also frequently for toileting (M = 1,4), general office work (M = 1,7) and undisturbed office work (M = 1,7). Employees move less frequent for getting food (M = 0,5), online: planned meeting (M = 0,8), interactive office work (M = 0,7), telephoning (M = 0,8) and lunch break (M = 0,6). The other reasons for movement were mentioned less times or even no times at all (M ≤ 0,4).

The employees of draaijer+partners took also the most steps for a walk outside (M = 914), which was also a lot more than for other reasons for movement. Reasons which caused also a considerable amount of steps are telephoning (M = 233), lunch break (M = 216) and getting a drink (M = 194). Some reasons caused on average less amount of steps: toileting (M = 66), getting food (M = 65), cycling outside or something like that (M = 46), household activity (M = 25), taking a break (M = 22), hang/grab coat (M = 18) and open (front)door (M = 10). The other reasons caused four or fewer steps on average.

Compared to the employees of Aestate, the employees of draaijer+partners moved only slightly more often for a walk outside (+0,1) but resulted in a lot more steps (+238). Although they also moved only slightly more often for getting a drink (+0,1), they took a lot more steps for this reason (+69). Besides, they moved more for telephoning (+0,6) and resulted in more steps (+195). On the other hand, they moved fewer times for toileting (-0,9) and accordingly resulted in fewer steps (-40). Although they moved only slightly less often for a lunch break (-0,1), they took fewer steps for this reason (-58). The groups are thus quite similar regarding reasons for movement. See figure 3.9 for an overview of the main differences between the groups in reasons for movement at home concerning the minutes of walking.

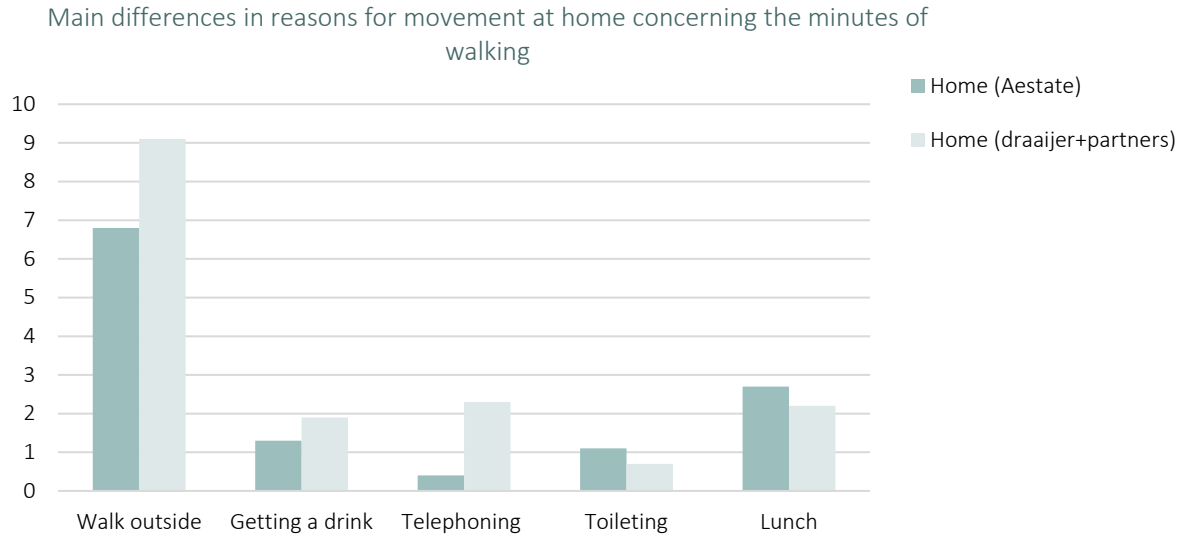

Figure 3.9 Main differences in reasons for movement at home concerning the minutes of walking measured with the activity trackers and the logbooks (own figure).

See appendix C.16 for an overview of the number of trips and steps per reason for movement within and around the home work environment of employees working for Aestate and draaijer+partners.

Destinations of movement

Within the home work environment, the employees of *Aestate* indicated in their logbooks to move most often to the study room (M = 3,5) and the kitchen (M = 3,4). The employees also moved frequently to the living room (M = 3,0) and the toilet (M = 1,9). The employees moved less frequent to the bathroom (M = 0,6) and outside (M = 0,6). The other destinations were mentioned fewer times or even no times at all (M ≤ 0,1): bedroom, children's room, garden room/greenhouse and the garden/balcony.

The employees of Aestate took the most steps outside (M = 851) according to the activity trackers and the logbooks. The employees also took a considerable amount of steps to the kitchen (M = 217) and the living room (M = 173). They took less steps to the toilet (M = 92), the bathroom (M = 43) and the study room (M = 42). The other destinations caused very limited steps or even no steps at all (M ≤ 4): bedroom, children's room, garden room/greenhouse and the garden/balcony. Although the employees of Aestate moved only 0,6 times to outside, it caused a considerable amount of steps (M = 851).

The employees of *draaijer+partners* indicated also to move most often to the study room (M = 4,5) and second-most to the kitchen (M = 2,8). The employees moved also frequently to the living room (M = 1,9). The employees moved less frequent to the toilet (M = 1,0), bedroom (M = 0,9), corridor/hall (M = 0,8), outside (M = 0,7) and the bathroom (M = 0,4). The other destinations were mentioned fewer times or even no times at all (M ≤ 0,2): children's room, garden room/greenhouse, garden/balcony and the attic.

The employees of draaijer+partners also took the most steps outside (M = 1102). The employees also took a considerable amount of steps to the kitchen (M = 254) and the study room (M = 190). They

took less steps to the living room (M = 105), the corridor/hall (M = 68), the toilet (M = 59), bedroom (M = 25) and the garden room/greenhouse (M =17). Although the employees of draaijer+partners moved only 0,7 times to outside, it caused a considerable amount of steps (M = 1102).

The groups are thus quite similar regarding the movement destinations. See appendix C.17 for an overview of the number of trips and steps to each destination within and around the home work environment of employees working for Aestate and draaijer+partners.

3.2.2 Office (before the COVID-19 pandemic)

Reasons for movement

Within the office in *Odijk* and its environment, employees (n = 14) indicated in their logbooks to move the most times for getting a drink (M = 4,2). The employees of Aestate also move frequently for toileting (M = 2,1), installing at the workplace (M = 1,9) and general office work (M = 2,9). Employees move less frequent for lunch break (M = 1,1), online: planned meeting (M = 1,4) and planned meeting (M = 1,4).

The other reasons for movement were mentioned fewer times or even no times at all (M ≤ 0,7). Within the office in *Utrecht* and its environment, employees (n = 2) indicated to move the most times for getting a drink (M = 2,5). The employees also move frequently for hang/grab coat (M = 1,0), installing at workplace (M = 1,0), general office work (M = 1,5), interactive office work (M = 2,0), lunch break (M = 1,0) and travelling (M = 1,0). Employees moved less frequent for toileting (M = 0,5). The other reasons for movement were mentioned no times at all.

Within the office in *Groningen* and its environment, one employee indicated to move the most times for getting a drink (M = 5) and undisturbed office work (M = 6). The following reasons were mentioned one time: installing at the workplace, online: informal contact with a colleague, general office work, planned meeting, unplanned meeting, telephoning, archiving and document maintenance and lunch break. The other reasons for movement were mentioned no times at all.

See appendix C.18 for the number of trips per reason of movement within and around the office building in Odijk, Utrecht and Groningen.

Destinations of movement

Within the office in *Odijk* and its environment, the employees indicated in their logbooks to move the most times to the kitchen (M = 5,0) and secondly to workplace B (M = 3,6). The employees of Aestate also move frequently to workplace C (M = 2,1) and the toilet (M = 2,0). Employees move less frequent to workplace A (M = 1,3), meeting room A (M = 1,3) and meeting room D (M = 1,2). The other destinations were mentioned fewer times (meeting room B and C, M ≤ 0,6) or even (almost) no times at all (workplace D and E, informal A and B and the storage, M ≤ 0,2). See appendix C.19.

Due to the limited employees of draaijer+partners that logged their movement patterns and reasons for movement of an average office day before the COVID-19 pandemic (n < 3) and resulting insufficient representation, the movement patterns and reasons for movement in the office in *Utrecht* and *Groningen* are only discussed briefly and not compared with the results of Aestate and with the home work environment. The results of both offices can be found in appendix C.18, C.20 and C.21.

3.2.3 Home vs. Office

As mentioned in chapter 3.1, the employees of Aestate made fewer trips at home (M = 15) than at the office (M = 21) and especially moved less frequent for getting a drink at home (M = 2,3) than at the office (M = 4,2). Both for online: planned meeting and planned meeting the employees move more often at the office (M = 1,4) than at home: respectively 0,9 and 0,1 times on average. At home, they moved less frequent for taking a break (M = 0,2) than at the office (M = 0,6). They also moved less frequent for a lunch break at home (M = 0,7) than at the office (M = 1,1). However, they moved more frequent for getting food at home (M = 0,6) than at the office (M = 0,2). The employees moved slightly more often for toileting at home (M = 2,3) than at the office (M = 2,1) and for a walk outside at home (M = 0,3) than at the office (M = 0,0). See figure 3.10 for an overview of the main differences between the work environments in reasons for movement concerning the number of trips.

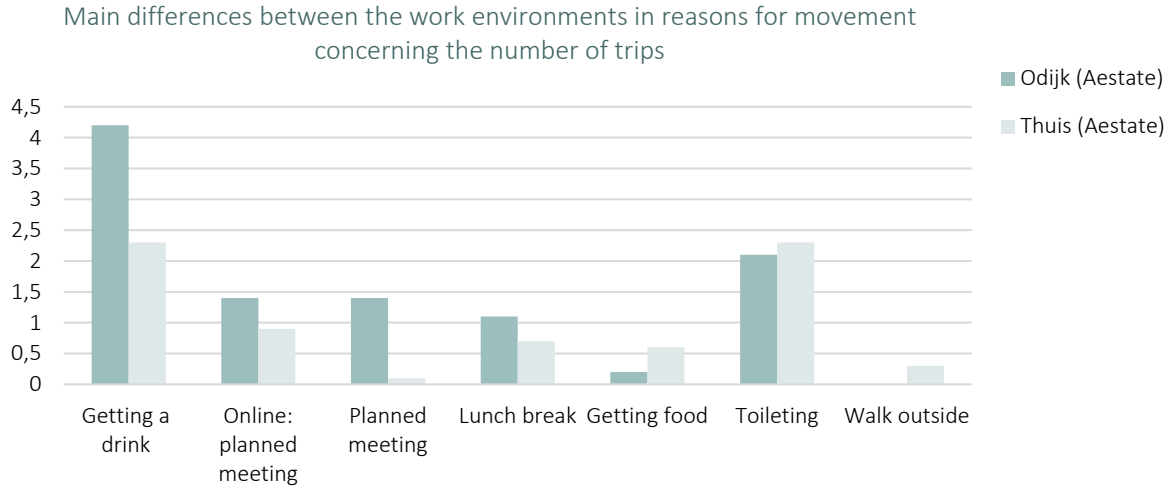

Figure 3.10 Main differences between the work environments in reasons for movement concerning the number of trips measured with the logbooks (own figure).

3.3 Spatial factors

3.3.1 Office (before the COVID-19 pandemic)

The office of Aestate in Odijk consists of a ground and first floor (see figure 3.11). This also holds for the office of draaijer+partners in Groningen (see figure 3.15). However, the office of draaijer+partners in Utrecht is mainly located on the fifth floor (see figure 3.13) with a few shared meeting rooms on the sixth floor. The floor plans of the ground and sixth floors were unfortunately not available. As explained in detail in chapter 2, spatial graphs are developed based on mainly the floor plans. Because of the unavailable floor plans, an employee who worked at the office in Utrecht was shortly interviewed about the locations on the ground and sixth floors. The spatial graphs of the offices in Odijk, Utrecht and Groningen can be found in figures 3.12, 3.14 and 3.16 respectively. The floor plans with the marked locations and routes and the comprehensive spatial graph calculations including the meaning of the abbreviations can be found in appendix D.

As there were only one and two employees who logged their average office day in respectively Utrecht and Groningen, no within-case analysis of movement patterns could be done. As the stairs climbed and the number of trips derived also from the logbook, this was not included in the cross-case analysis.

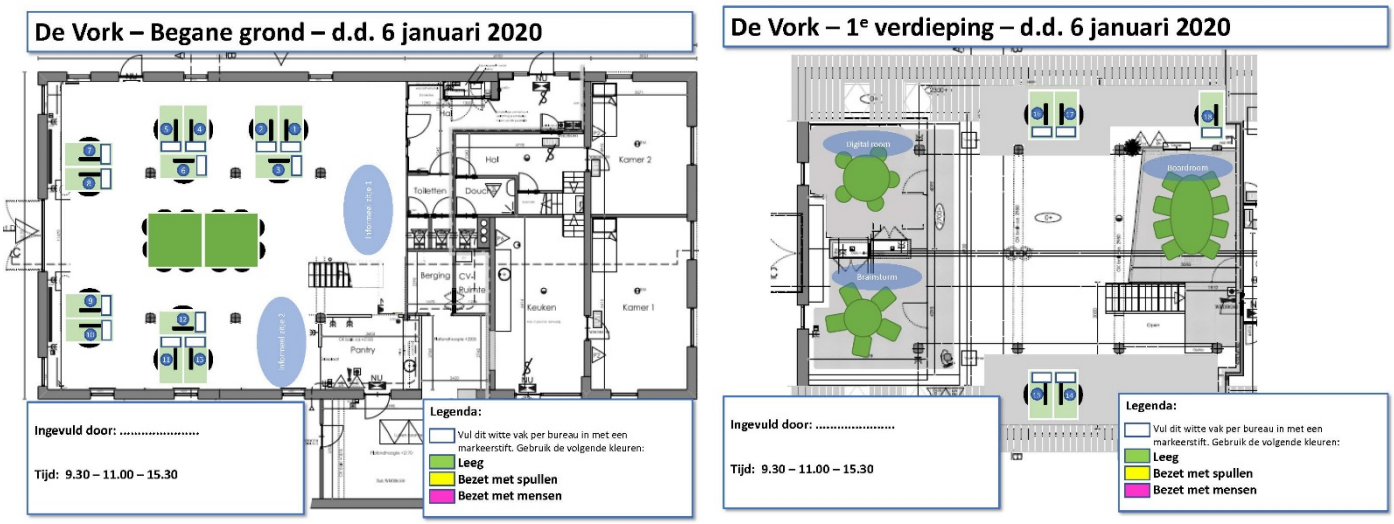

Figure 3.11 Floor plans office Odijk (own figure).

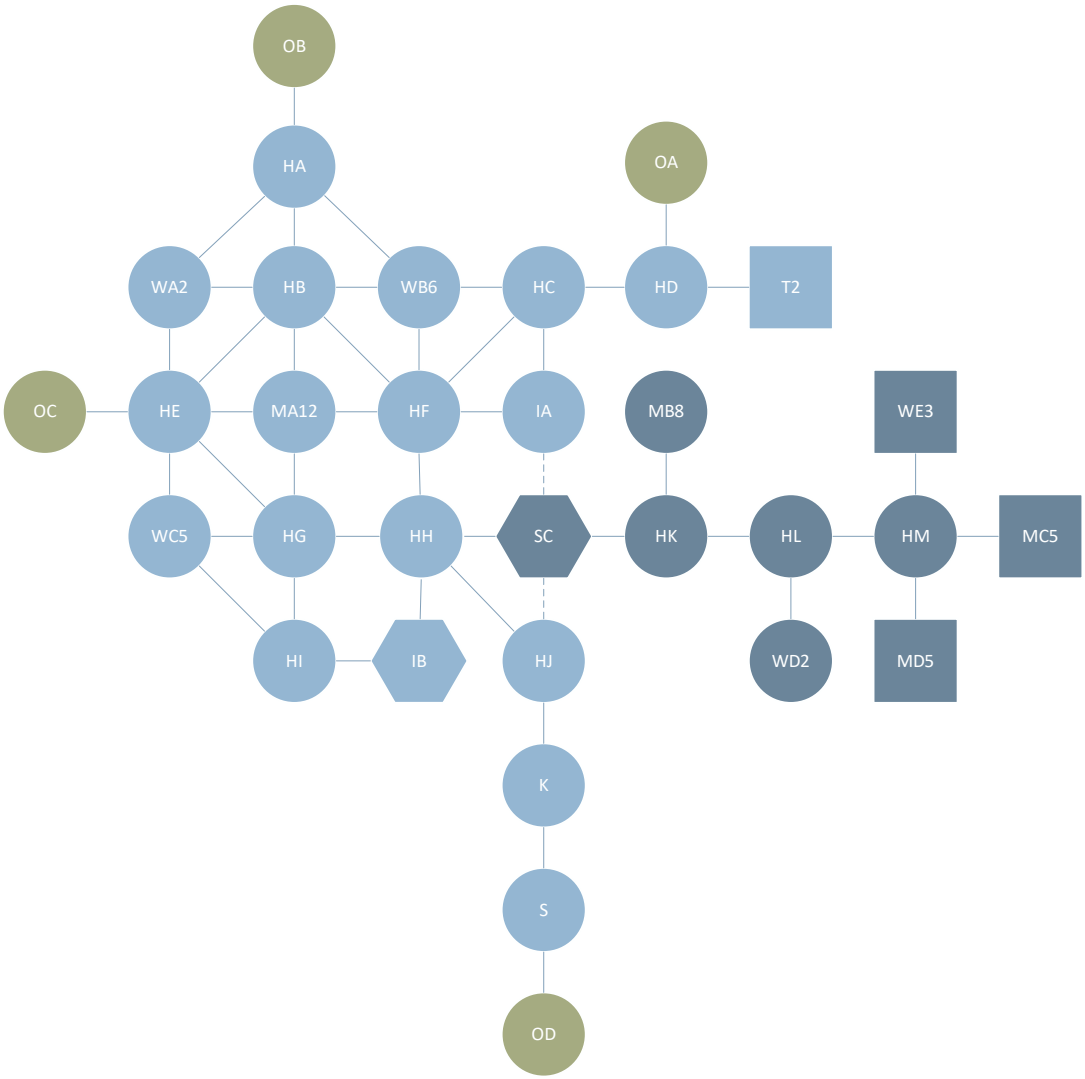

Figure 3.12 Spatial Graph office Odijk (own figure).

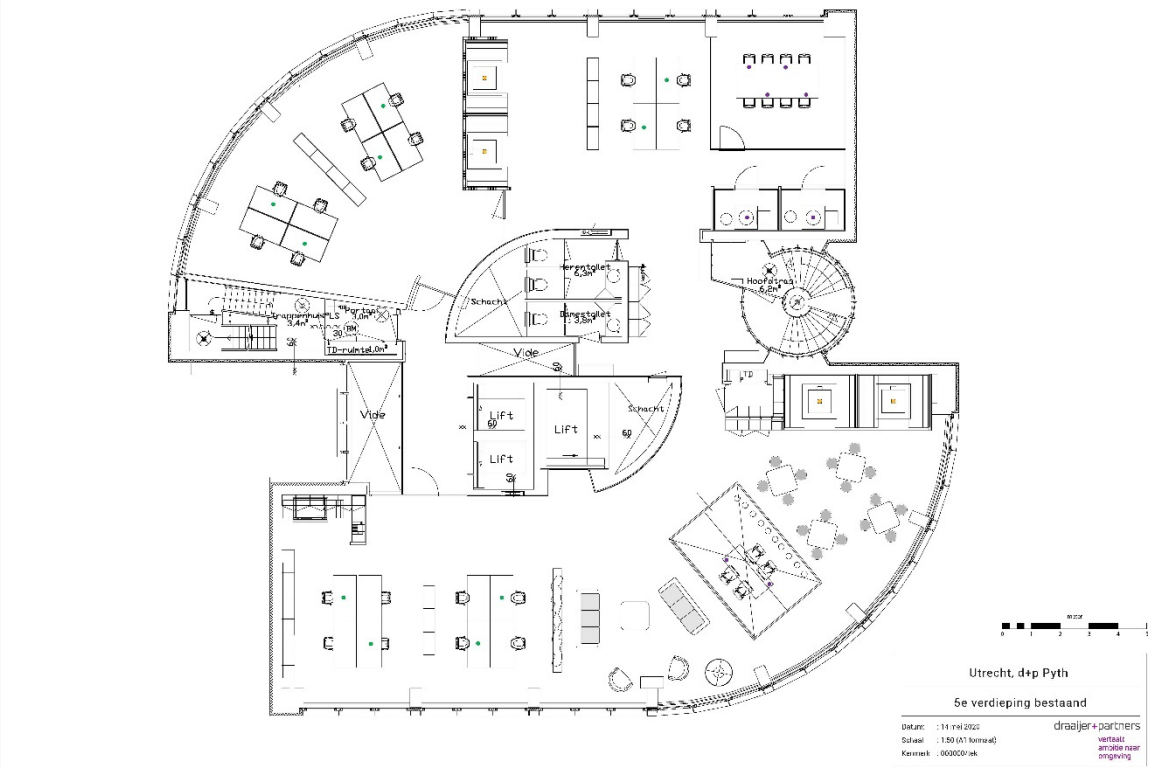

Figure 3.13 Floor plan office Utrecht (own figure).

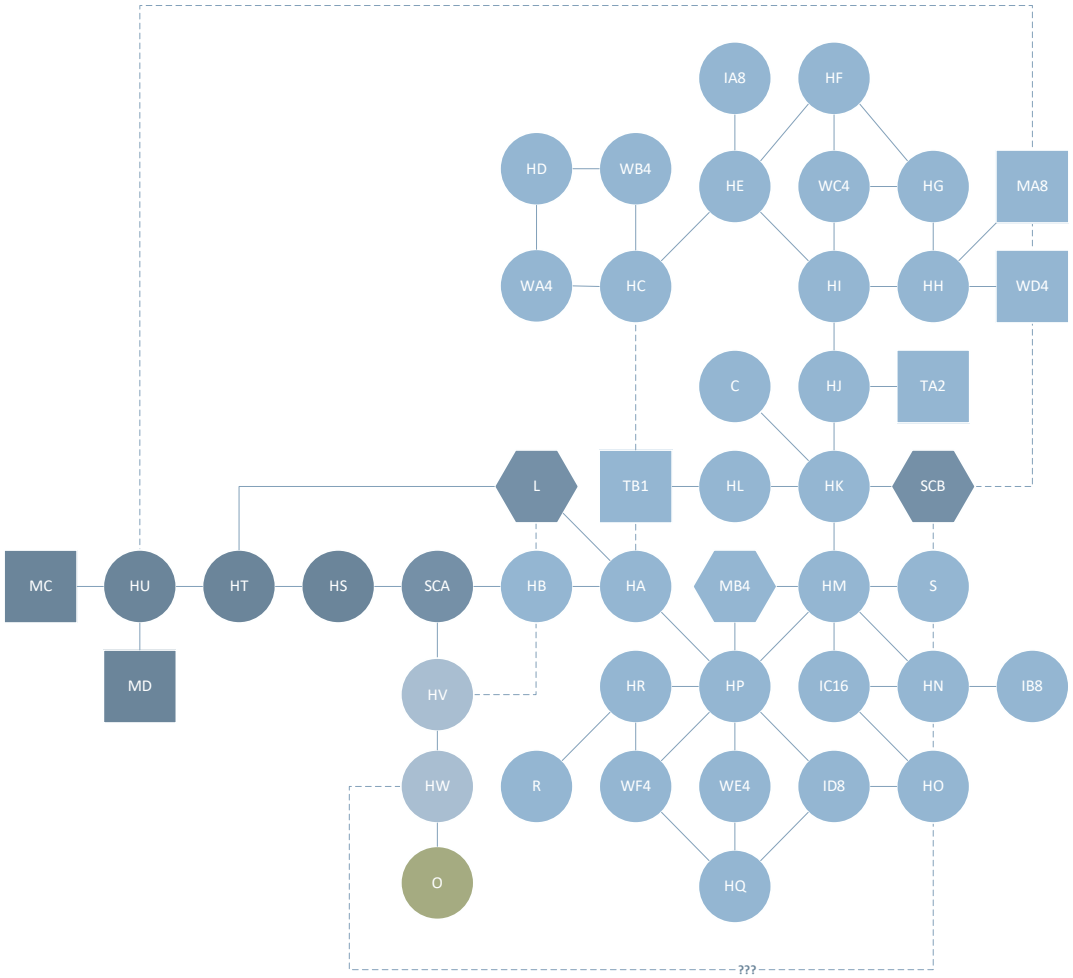

Figure 3.14 Spatial Graph office Utrecht (own figure).

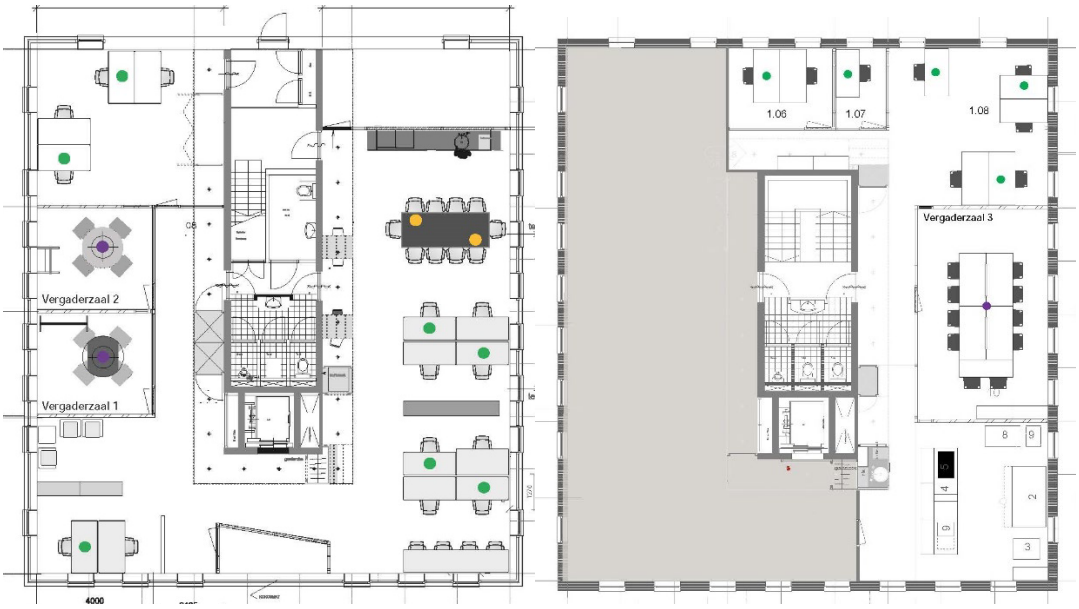

Figure 3.15 Floor plans office Groningen (own figure).

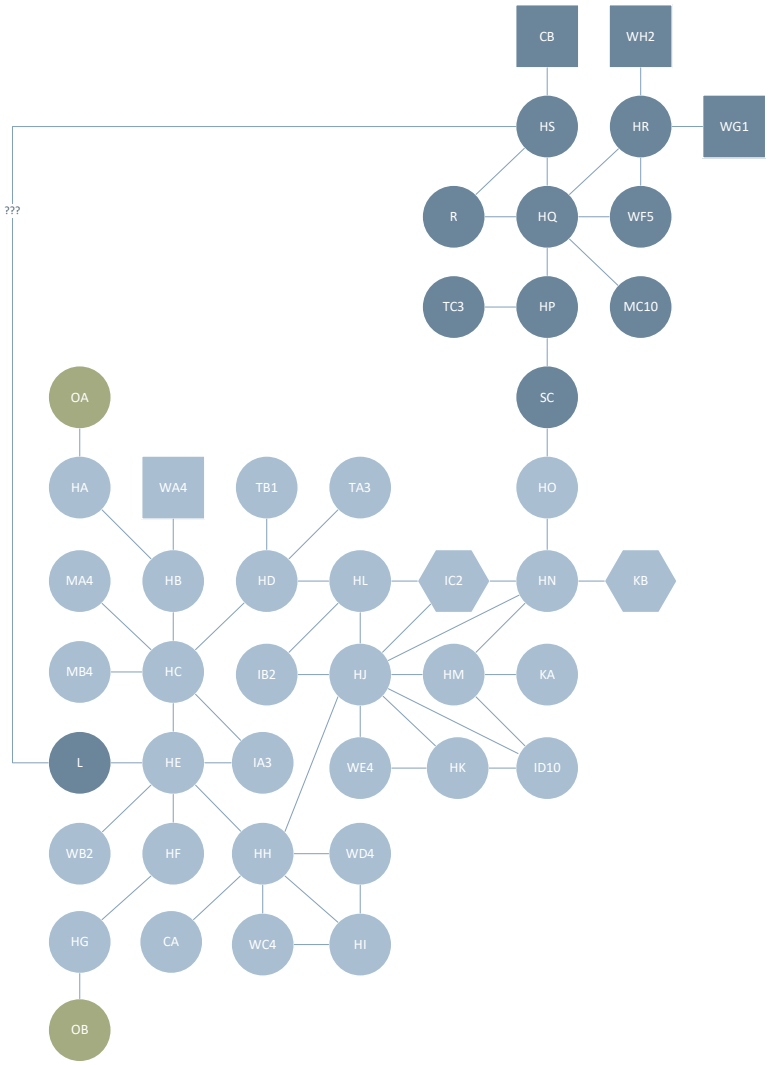

Figure 3.16 Spatial Graph office Groningen (own figure).

Cross-case analysis: relation between the indicated minutes of walking & arrangement of spaces

As indicated in chapter 3.1.2, the employees who worked at the office in Groningen walked the most and the employees who worked at the office in Odijk walked about the same minutes as the employees who worked at the office in Utrecht. This corresponds with the radius and diameter of the spatial graph, as the radius and diameter are the highest of the office in Groningen and are the same for the office in Odijk and Utrecht (see table 3.1).

Besides, compared to the office in Odijk and Utrecht, the office in Groningen has multiple workplaces in the periphery. Accordingly, the workplaces are less centrally located to key office destinations (KODs) in the office in Groningen (5,7) compared to the office in Odijk and Utrecht (4,9). This also holds for the centrality of workplaces to other workplaces which is in the office in Groningen 6,5, in the office in Odijk 5,1 and in the office in Utrecht 4,5. See table 3.1.

Whereas the office in Odijk and Utrecht have both the toilet in the periphery, the office in Groningen has a coffee point in the periphery. Another important difference is the multiple meeting rooms in the periphery in Odijk and Utrecht. Especially the kitchen(s) and coffee points are less central in the office in Groningen (5,6) compared to the office in Odijk and Utrecht (4,6). See table 3.1.

While the office in Odijk and Utrecht both have a staircase in the centre, the centrality of the staircase differs. The staircase in Odijk has a centrality of 3,4 and a staircase in Utrecht a centrality of 4,2. This is the opposite for the toilets. While the toilet in the office in Odijk has a centrality of 6,1, the toilet in the office in Utrecht has a centrality of 5,2. Another difference between these two offices is the centrality of the storage which is 5,6 in the office in Odijk and 4,3 in the office in Utrecht. Finally, the workplaces are more centrally located to other workplaces in the office in Utrecht (5,1) than in the office in Odijk (4,5). This combination of differences seems not to influence employees' minutes of walking as this was the same. See table 3.1.

		Odijk	Utrecht	Groningen
	Radius	6	6	7
	Diameter	9	9	12
	Center	Informal B & Staircase	Meeting room B, Staircase B, Lift	Informal C & Kitchen B
	Periphery	Workplace E, Meeting rooms C and D & Toilet	Workplace D, Meeting room A, C and D & Toilet A and B	Workplace A, G and H & Coffee point B
Centrality	Staircase(s)	3,4	4,2 & 5,1	4,6
	Lifts	-	4,1	?
	Meeting rooms	5,3	5,7	6,1
	Kitchen(s) and coffee points	4,6	4,6	5,6
	Informal(s)	4,2	4,6	4,6
	Toilet(s)	6,1	5,2	5,7
	Storage	5,6	4,3	-
	Workplaces	4,9	4,8	6,0
	Key office destinations (KODs)	4,9	5,0	5,4
	Workplaces to KODs	4,9	4,9	5,7
	Workplaces to other workplaces	5,1	4,5	6,5

Table 3.1. Arrangement of spaces within the office Odijk, Utrecht and Groningen (own table).

Within-case analysis: office Odijk

The popularity of the workplaces corresponds with the degree of each workplace. The most popular workplace (B) has the highest degree. This indicates that probably a lot of movement takes place next to this workplace and accordingly this might be a busy workplace. Thus it seems that the employees seek busy workplaces. Also, the three most popular workplaces (A, B and C) are more centrally located than the least popular workplaces (D and E). There is no difference between these three workplaces in centrality to other workplaces. But there is a difference in the centrality to key office destinations (KODs). Workplace B is most centrally located to KODs. However, although workplace D is as central as workplace A to KODs, workplace A is far more popular. This could be because workplace D is located on the first floor, and workplace A is located on the ground floor. If employees enter the building, no stair use is necessary to workplaces A, B and C. Workplace B is most close to the entrance. Accordingly, workplace A is closer to the entrance than workplace B. Besides, workplace A is closer to other workplaces and has a higher degree compared to workplace D. As already mentioned, workplace E is in the periphery of the office and is not used at all according to the logged average office days. See figure 3.17.

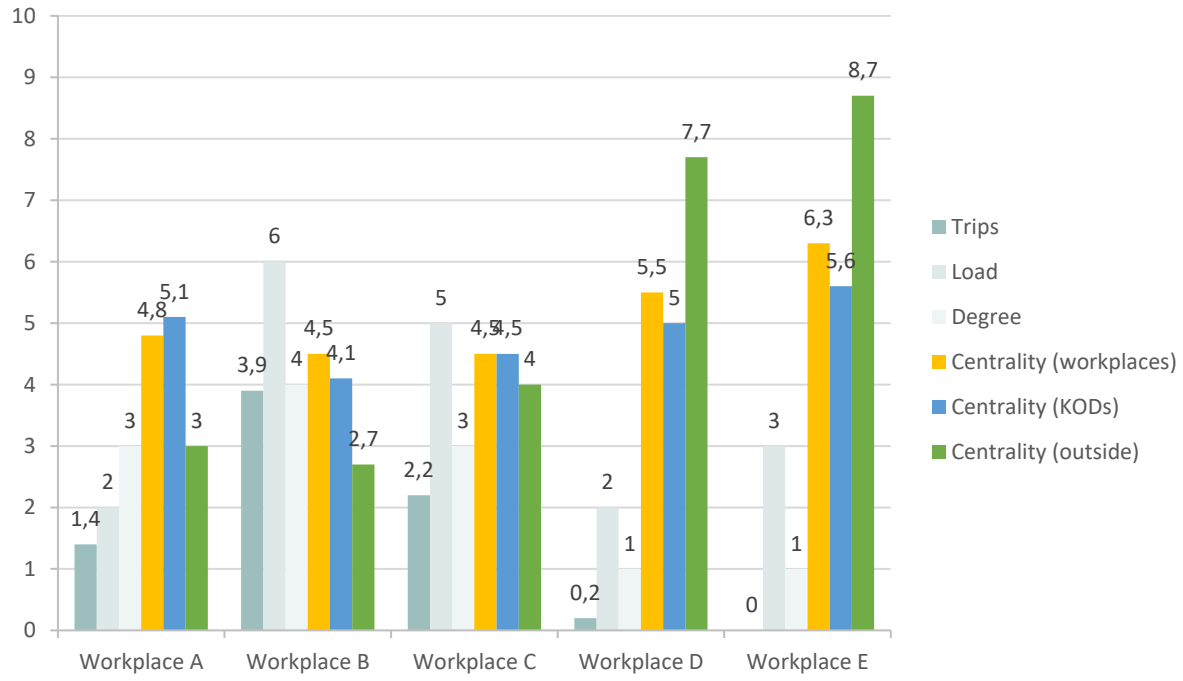

Figure 3.17 Workplaces and their spatial arrangement in the office in Odijk (own figure).

3.3.2 Home (during the COVID-19 pandemic)

Dwelling type

From the employees of *Aestate* with activity data during working hours at home, most lived in a rowhouse (n = 6) or an apartment (n = 6). Most employees of *draaijer+partners* lived in a rowhouse (n = 5). Only one employee or nobody lived in another type of dwelling: detached house, semi-detached house and apartment.

Due to the limited participants and resulting privacy issues, only the employees of *Aestate* who lived in a rowhouse can be compared with the ones who lived in an apartment. On average, the employees of

Aestate who lived in a rowhouse took more steps (ΔM = 545) than the employees who lived in an apartment, respectively 2153 and 1608 steps. However, the differences within these subgroups are large and the ranges do overlap. The minimum and maximum of the group who lived in a rowhouse are 656 and 5012 and for the group who lived in an apartment, it is 617 and 3767. This could be a result of the walks outsides, which is not dependent on the type of dwelling. See appendix C.22 for a table with more information.

Dwelling surface

There is a weak correlation between the steps and dwelling surface for both the employees of *Aestate* (r = -0,107, Sig. = 0,692, n = 16) and *draaijer+partners* (r = 0,129, Sig. = 0,808, n = 6). This also could be a result of the walks outsides, which is not dependent on the surface of the dwelling. See appendix C 23.

Living environment

From the employees of *Aestate* with activity data during working hours at home, most lived in the city center (n = 5) or the city but outside the center (n = 8). Most employees of *draaijer+partners* lived in the city but outside the center (n = 4). Only two or fewer employees lived in another type of living environment.

Due to the limited participants and resulting privacy issues, only the employees of *Aestate* who lived in the city center can be compared with the ones who lived in the city but outside the center. On average, the employees of Aestate who lived in the city but outside the center took more steps (ΔM = 422) than the employees who lived in the city center, respectively 2070 and 1648 steps. This difference was slightly smaller than the difference between the two discussed dwelling types. Also, in this case, the differences within these subgroups are large and ranges do overlap. See appendix C.24 for a table with more information.

Months living in the dwelling and its environment

From the employees of *Aestate* with activity data during working hours at home, most lived more than 12 months in their dwelling (n = 13) and only three less. Most employees of *draaijer+partners* also lived more than 12 months in their dwelling (n = 5) and only one less.

Due to the limited participants and resulting privacy issues, only the two mentioned subgroups of *Aestate*'s employees can be compared with each other. On average, the employees who lived more than 12 months in their dwelling took more steps (ΔM = 449) than the employees who lived fewer months in their dwelling, respectively 1948 and 1499. This difference was slightly larger than the difference between the two discussed living environments and slightly smaller than the two discussed dwelling types. The difference between the employees who lived up to and including 12 months in their dwelling is relatively small compared to all the other discussed subgroups. But again, the ranges do overlap. See appendix C.25 for a table with more information.

3.4 Social and personal factors

3.4.1 Office (before the COVID-19 pandemic)

Gender

From the employees of Aestate who indicated the minutes walked during working hours at the office in *Odijk*, most employees are male (58%) and the others were female. Most employees of draaijer+partners who worked at the office in *Utrecht* are female (60%). Also, most employees are female (75%) from the ones who indicated the minutes walked during working hours at the office in *Groningen* in the period before the COVID-19 pandemic.

Due to the limited participants and resulting privacy issues, only the two mentioned subgroups of Aestate's employees who worked at the office in *Odijk* can be compared with each other. On average, the group of males walked more minutes (ΔM = 1,6) than the group of females, respectively 24,1 and 22,5 minutes. However, the difference between females (SD = 8,0) is lower than between males (SD = 10,2). This is also visible in the large differences in range. The range of the group of males is 35 minutes and the range of the group of females is just 15 minutes. Although the group of employees who worked in Utrecht and Groningen consisted of mostly females, they walked the same amount of minutes or more as the group of employees who worked in the office in Odijk. See appendix C.26 for a table with more information.

Age

Most employees of Aestate who worked at the office in *Odijk* were between 21 and 30 years old (63%). The other age groups were very small: between the 31 and 40 years (16%), 41 and 50 years (11%), 51 and 60 years (5%) and 61 years or older (5%). There were no employees 20 years or younger. The employees of *draaijer+partners* were between 21 and 30 years old, 31 and 40 years and 51 and 60 years. All these subgroups consisted of two or fewer employees.

Due to the limited participant and resulting privacy issues, only two subgroups of Aestate's employees who worked at the office in *Odijk* can be compared: 21-30 years (n = 12) and 31-40 years (n = 3). The average minutes of walking is higher (ΔM = 2,1) of the group between 21 and 30 years old (M = 22,1) compared to the group between 31 and 40 years old (M = 20,0). However, the difference between employees of 31 to 40 years old (SD = 5,0) is lower than between employees of 21 to 30 years old (SD = 8,4). This is also visible in the large difference in range. The range of the group of employees between 21 and 30 years old is 20 minutes and the range of the group of employees between 31 and 40 years is 10 minutes. See appendix C.27 for a table with more information.

Also, compared to gender (SD ≤ 10,2), the difference within the two age categories is lower (SD ≤ 8,4). Moreover, the difference in average is higher between the two age categories (ΔM = 2,1) than between the two genders (ΔM = 1,6). Also, the range is smaller of the two age categories (≤ 20) than of the two genders (≤ 35). To conclude, it seems that age is of more influence than gender on the minutes walked at the office during working hours.

Education level

Most employees of Aestate who worked at the office in *Odijk* had an education level of HBO (37%) or WO (53%) and only two had an education level of MBO. Most employees of draaijer+partners who worked at the office in *Utrecht* had an education level of HBO (60%). Also, most employees of

draaijer+partners who worked at the office in *Groningen* had an education level of HBO (75%). In both cases, there was only one employee who had an education level of WO.

Due to the limited participants and resulting privacy issues, only two subgroups of Aestate's employees who worked at the office in *Odijk* can be compared: HBO (n = 7) and WO (n = 10). The average minutes of walking is higher (ΔM = 8,7) of the group with an education level of WO (M = 28,0) compared to the group with an education level of HBO (M = 19,3). This can be explained by the difference in work activities. And, the difference between employees with an education level of WO (SD = 8,6) is only slightly higher than between the employees with an education level of HBO (SD = 7,9). However, the difference in range is relatively larger. The range of the group of employees with an education level of WO is 30 minutes and the range of the group of employees with an education level of HBO is 20 minutes. See appendix C.28 for a table with more information.

Compared to gender (ΔM = 1,6) and age (ΔM = 2,1), the difference in average is larger between the two education levels (ΔM = 8,7). However, the difference within the two groups with a different education level is not necessary smaller (SD ≤ 8,6) compared to gender (SD ≤ 10,2) and age (SD ≤ 8,4). This also holds for the range of the two education levels (≤ 30) compared to gender (≤ 35) and age (≤ 20).

BMI

There is a weak positive correlation between the minutes walked and BMI of the employees of Aestate who worked at the office in *Odijk* (r = 0,126, Sig. = 0,620, n = 18). In the group of draaijer+partners' employees who worked at the office in *Utrecht*, there was a moderate positive correlation (r = 0,475, Sig. = 0,419, n = 5) and who worked at the office in *Groningen* there was a relatively strong positive correlation (r = 0,728, Sig. = 0,272, n = 4). Thus, in all three cases, there was a non-significant positive correlation but the strength of the correlation differs. See appendix C.29.

Movement disability

In all three cases, most employees strongly disagreed with the statement "I had a condition that restricted my daily movement". From the employees who worked at the office in *Odijk*, *Utrecht* and *Groningen* respectively 89%, 80% and 75% strongly disagreed. Due to the limited participants with a condition that restricted daily movement and resulting privacy issues, no subgroups can be compared. See appendix C.30 for a table with more information.

Perceived organisational attention to health and vitality

Most employees of Aestate who indicated the minutes walked during working hours at the office in *Odijk* strongly agreed or agreed with the statement "the organization pays enough attention to health and vitality" (63%). Only some employees disagreed with the statement (11%). The others neither agreed nor disagreed (26%). Contrastingly, most employees of draaijers+partners who worked at the office in *Utrecht* and *Groningen* disagreed with the statement: respectively 60% and 75%. Only one employee (20%) who worked at the office in Utrecht agreed with the statement and even one of the employees worked at the office in Groningen. Nobody strongly agreed with the statement. The others neither agreed nor disagreed: respectively 20% and 25%. In all three cases, no one strongly disagreed with the statement.

Due to the limited participants, only the three subgroups of Aestate's employees who worked at the office in *Odijk* can be compared: neither agree nor disagree (n = 5), agree (n = 9) and strongly agree (n = 3). The other subgroups consisted of two or fewer responses. The average minutes of walking is higher (ΔM = 4,0) of the groups of employees who neither agreed nor disagreed and agreed (M = 24)

compared to the group of employees who strongly agreed (M = 20). In other words, how more perceived organisational attention to health and vitality, how fewer minutes of walking at the office. However, the difference between employees who neither agreed nor disagreed (SD = 8,2) is only slightly smaller than between the employees who strongly agreed (SD = 8,7) and the minimum and maximum are the same: respectively 15 and 30 minutes (range = 15). Although the average was the same (M = 24) comparing the group of employees who neither agreed nor disagreed and the group of employees who agreed, the difference between employees who neither agreed nor disagreed (SD = 8,2) was smaller than between employees who agreed (SD = 11,1). The range of the group of employees who neither agreed nor disagreed is 15 minutes and the range of the group of employees who agreed was 35 minutes. See appendix C.31 for a table with more information.

Compared to gender (ΔM = 1,6), age (ΔM = 2,1) and education level (ΔM = 8,7), the difference in average (ΔM = 4,0) between neither agree nor disagree and agree (M = 24) and strongly agree (20,0) is relatively moderate. Looking at the first and second subgroup the difference is relatively small (SD ≤ 8,7) compared to gender (SD ≤ 10,2), age (SD ≤ 8,4) and education level (SD ≤ 8,6). The difference within the third subgroup, who agreed, is relatively large (SD = 11,1). This also holds for the range of the three subgroups, respectively 15 and 35 minutes, compared to gender (≤ 35), age (≤ 20) and education level (≤ 30).

Perceived managerial support to health and vitality

Most employees of Aestate who worked at the office in *Odijk* strongly agreed or agreed with the statement "the managers support employees in the field of health and vitality" (53%). Also, a considerable amount of employees neither agreed nor disagreed with the statement (32%). The others disagreed with the statement (16%). Contrastingly, most employees of draaijer+partners who worked at the office in *Utrecht* disagreed (40%) or neither agreed nor disagreed (40%) with the statement. Only one employee (20%) agreed with the statement. Comparably, most employees of draaijer+partners who worked at the office in *Groningen* neither agreed nor disagreed with the statement (75%). The remaining employee disagreed (25%) and thus nobody agreed with the statement. In the last two cases, no one strongly agreed and in all three cases, no one strongly disagreed with the statement.

Due to the limited participants, only the four subgroups of Aestate's employees who worked at the office in *Odijk* can be compared: disagree (n = 3), neither agree nor disagree (n = 6), agree (n = 7) and strongly agree (n = 3). The other subgroups consisted of two or fewer responses. The average minutes of walking is higher (ΔM = 6,7) of the group of employees who disagreed (M = 26,7) compared to the groups of employees who neither agreed nor disagreed (M = 24,2), agreed (M = 22,9) and strongly agreed (M = 20,0). In other words, like the previously discussed statement, how more perceived managerial support to health and vitality, how fewer minutes of walking at the office. See appendix C.31 for a table with more information.

Compared to the statement "the organization pays enough attention to health and vitality" (ΔM = 4,0), the difference in average between the groups who neither agreed nor disagreed and strongly agreed (ΔM = 4,2) is only slightly larger. The difference in average between the groups who agreed and strongly agreed (ΔM = 2,9) is smaller compared to the previously discussed statement (ΔM = 3,9).

Perceived organisational promotion of breaks

Most employees of Aestate who worked at the office in *Odijk* strongly agreed or agreed with the statement "break is encouraged at work by the organization" (74%). Also, some employees neither agreed nor disagreed (16%). Only two employees strongly disagreed or disagreed with the statement

(11%). In contrast, all employees of draaijer+partners who worked at the office in *Utrecht* and *Groningen* strongly agreed or agreed with the statement (100%).
Due to the limited participants, only the three subgroups of Aestate's employees who worked at the office in *Odijk* can be compared: neither agree nor disagree (n = 3), agree (n = 10) and strongly agree (n = 4). The other subgroups consisted of two or fewer responses. The average minutes of walking is higher (ΔM = 7,5) of the group of employees who neither agreed nor disagreed (M = 30,0) compared to the groups of employees who agreed (M = 23,0) and strongly agreed (M = 22,5). In other words, like the previously discussed two statements, how more perceived organisational promotion of breaks, how fewer minutes of walking at the office. See appendix C.31 for a table with more information.

Compared to the previous two statements "the organization pays enough attention to health and vitality" (ΔM = 4,0) and "the managers support employees in the field of health and vitality" (ΔM = 4,2), the difference in average between the groups who neither agreed nor disagreed and strongly agreed (ΔM = 7,5) is larger.

Activity profile

In the group of Aestate's employees, there is a positive significant correlation between the minutes walked in the office in *Odijk* and the percentage of planned meetings in a workweek (r = 0,494, Sig. = 0,037, n = 18). In this group, there are also negative correlations between the minutes walked and percentage of (1) general office work (r = -0,386, Sig. = 0,114, n = 18) and (2) undisturbed office work (r = -0,304, Sig. = 0,220, n = 18). The other correlations are relatively weak (r ≤ (-),118): interactief bureauwerk, ongepland overleg, telefoneren, archiveren en documentverzorging, lezen en overige activiteiten.

In the group of draaijer+partners' employees, there are positive correlations between the minutes walked at the office in *Utrecht* and the percentage of (1) unplanned meeting (r = 0,397, Sig. = 0,508, n = 5) and (2) reading (r = 0,397, Sig. = 0,508, n = 5). And there are also negative correlations between the minutes walked and percentage of (1) interactive office work (r =- 0,539, Sig. = 0,349, n = 5) and (2) archiving and document maintenance (r = -0,468, Sig. = 0,427, n = 5). The other correlations are relatively weak (r ≤ (-),230).

In the group of draaijer+partners employees, there are positive correlations between the minutes walked at the office in *Groningen* and the percentage of (1) general office work (r = 0,928, Sig. = 0,072, n = 4), (2) unplanned meeting (r = 0,785, Sig. = 0,215, n = 4), (3) reading (r = 0,754, Sig. = 0,246, n = 4) and (4) other activity (r = 0,705, Sig. = 0,295, n = 4). And there are also negative correlations between the minutes walked and percentage of (1) interactive office work (r = -0,844, Sig. = 0,156, n = 4) and (2) telephoning (r = -0,912, Sig. = 0,088, n = 4).

See appendix C.32 for a table with more information.

Workplace change

Most employees of Aestate who worked at the office in *Odijk* indicated to change from workplace at the start of each day (26%) or several times during the day (32%). Regarding workplace change, some employees indicated: never (5%), less than once a week (11%), 1-2 times a week (11%), 3-4 times a week (5%) and once during the day (11%). Contrastingly, most employees of draaijer+partners who worked at the office in *Utrecht* indicated to change never from workplace (60%). The others indicated to change from workplace 1-2 times a week (20%) and once during the day (20%). In the group of draaijer+partners employees who worked at the office in *Groningen*, no answer stood out: never, 1-2 times a week, once during the day and several times during the day were all answered once (20%).

Due to the limited participants, only the two subgroups of Aestate's employees who worked at the office in *Odijk* can be compared: at the start of each day (n = 5) and several times during the day (n = 6). The other subgroups consisted of two or fewer responses. The average minutes of walking is higher (ΔM = 9,0) of the group of employees who indicated to change from workplace several times during the day (M = 30,0) compared to the group of employees who indicated to change from workplace at the start of each day (M = 21,0). See appendix C.33 for a table with more information.

Days a week with 30 minutes or more physical activity

In the group of Aestate's employees who worked at the office in *Odijk*, there is a negative significant correlation between the minutes walked and the days a week with 30 minutes or more physical activity (r = -0,485, Sig. = 0,035, n = 19). In other words, how more employees move during spare time in a week, how less they move during working hours at the office. In the group of draaijer+partners' employees who worked at the office in *Utrecht*, there is a positive correlation (r = 0,672, Sig. = 0,214, n = 5). Within the group who worked at the office in *Groningen*, there is a relatively weak negative correlation (r = -0,017, Sig. = 0,983, n = 4). See appendix C.34.

Minutes of physical activity during commuting

In the group of Aestate's employees who worked at the office in *Odijk*, there is a relatively weak positive correlation between the minutes walked and the minutes of physical activity during commuting (r = 0,125, Sig. = 0,609, n = 19). This relatively weak correlation, but now negative, also holds for the group of draaijer+partners' employees who worked at the office in *Utrecht* (r = -0,073, Sig. = 0,907, n = 5). There is a slightly stronger positive correlation within the group of draaijer+partners' employees who worked at the office in *Groningen* (r = 0,286, Sig. = 0,714 n = 4). See appendix C.35.

3.4.2 Home (during the COVID-19 pandemic)

Gender

From the employees of *Aestate* with activity data during working hours at home, most employees are male 56% and the others were female. Half of *draaijer+partners*' employees were male (50%) and the other half was female.

The male employees of *Aestate* (M = 19,4) walked on average more minutes (ΔM = 1,7) than the female employees (M = 17,7). This is nearly the same difference as within the office in Odijk (see paragraph 3.4.1). However, the differences between females (SD = 11,3) is smaller than between males (SD = 16,2). This is also visible in the large differences in range. The range of the group of males is 44,0 and the range of the group of females is 34,8. The difference between females was also lower within the office in Odijk compared to males (see paragraph 3.4.1).

Contrastingly, the male employees of *draaijer+partners* (M = 19,0) walked on average less minutes (ΔM = 1,0) than the female employees (M = 20,0). This difference is slightly smaller than within the group of Aestate's employees. Like in the case of Aestate, the differences between females (SD = 4,1) is smaller than between males (SD = 8,2). This is also visible in the larger difference in range. The range of the group of males is 15,8 and the range of the group of females is 7,1.

See appendix C.36 for a table with more information.

Age

From the employees of *Aestate*, most employees were between 21 and 30 years old (56%). The other age groups were small: between the 31 and 40 years (19%), 41 and 50 years (13%), 51 and 60 years (6%) and 61 and 64 years (6%). There were no employees 20 years or younger. Also, the employees of *draaijer+partners* were mostly between 21 and 30 years old (67%). Only some employees were between 51 and 60 years old (33%).

Due to the limited participants and resulting privacy issues, only two subgroups of *Aestate*'s employees can be compared: 21-30 years (n = 9) and 31-40 years (n = 3). The other subgroups consisted of two or fewer responses. The employees between 21 and 30 years old of Aestate (M = 18,8) walked on average more minutes (ΔM = 4,4) than the employees between 31 and 40 years old (M = 14,4). See appendix C.37 for a table with more information.

Although this was also the case within the office (see paragraph 3.4.1), the difference in average is larger within the home work environment. The differences within the group of employees between 21 and 30 years (SD = 12,7) is slightly lower than within the group of employees between 31 and 40 years old (SD = 13,9). Contrastingly, the difference within the group of employees between 21 and 30 years was larger at the office in Odijk compared to the group of employees between 31 and 40 years old (see paragraph 3.4.1).

Education level

From the employees of *Aestate*, most employees have an education level of HBO (50%) or WO (38%). The other employees had an education level of MBO (13%). Almost all employees of *draaijer+partners* had an education level of HBO (80%). Only one employee had an education level of WO (20%).

Due to the limited participants and resulting privacy issues, only two subgroups of *Aestate*'s employees can be compared: HBO (n = 8) and WO (n = 6). The other subgroups consisted of two or fewer responses. The employees of Aestate who had an education level of WO (M = 23,0) walked on average more minutes (ΔM = 11,2) than the employees who had an education level of HBO (M = 11,8). This can be explained by the difference in work activities. See appendix C.38 for a table with more information.

Although this was also the case within the office (see paragraph 3.4.1), the difference in average is larger within the home work environment. However, the difference within the group of employees with an education level of WO (SD = 15,8) is larger than within the group of employees with an education level of WO (SD = 4,7). This difference was also larger within the office in Odijk.

BMI

There is a weak correlation between the minutes walked and BMI of both groups of employees: *Aestate* (r = -0,194, Sig. = 0,488, n = 15) and *draaijer+partners* (r = 0,114, Sig. = 0,830, n = 6). However, in the group of Aestate, this correlation was negative and positive in the group of draaijer+partners. See appendix C.39.

Contrastingly, within the office, there were only positive correlations ranging from relatively weak to strong (see paragraph 3.4.1).

Movement disability

In both groups of employees, most employees strongly disagreed with the statement "I have a condition that restricts my daily movement": *Aestate* (75%) and *draaijer+partners* (83%). Due to the limited participants and resulting privacy issues, no subgroups can be compared. See appendix C.40 for a table with more information.

Perceived organisational attention to health and vitality

Most employees of *Aestate* with activity data during working hours at home strongly agreed or agreed with the statement "the organization pays enough attention to health and vitality" (75%). Only one employee disagreed with the statement (6%). The other neither agreed nor disagreed (19%). In contrast, only half of the employees of *draaijer+partners* strongly agreed or agreed with the statement (50%). Two employees disagreed with the statement (33%). Only one employee neither agreed nor disagreed (17%). In both groups of employees, nobody strongly disagreed with the statement.

Due to the limited participants, only the three subgroups of *Aestate*'s employees can be compared: neither agree nor disagree (n = 3), agree (n = 9) and strongly agree (n = 3). The other subgroups consisted of two or fewer responses. The employees of Aestate who neither agreed nor disagreed (M = 20,4) and agreed (M = 20,9) walked on average more minutes (ΔM = ±6,7) than the employees who strongly agreed (M = 14,0). See appendix C.41 for a table with more information.

Although this was also the case within the office (see paragraph 3.4.1), the difference in average is larger within the home work environment. However, the difference with the group of employees who neither agreed nor disagreed (SD = 19,1) and agreed (SD = 15,1) is larger than within the group of employees who strongly agreed (SD = 5,9). The opposite was the case within the office in Odijk.

Perceived managerial support to health and vitality

Most employees of *Aestate* strongly agreed or agreed with the statement "the managers support employees in the field of health and vitality" (63%). Only two employees disagreed with the statement (13%). The others neither agreed nor disagreed (25%). Contrastingly, only a third of the employees of *draaijer+partners* agreed with the statement (33%). Also, a third disagreed (33%) and neither agreed nor disagreed (33%). In both groups of employees, nobody strongly disagreed with the statement. But only in the group of draaijer+partners also nobody strongly agreed with the statement.

Due to the limited participants, only the three subgroups of *Aestate*'s employees can be compared: neither agree nor disagree (n = 4), agree (n = 7) and strongly agree (n = 3). The other subgroups consisted of two or fewer responses. The employees of Aestate who neither agreed nor disagreed (M =16,6) walked on average fewer minutes (ΔM = 8,7) than the employees who agreed (M = 25,3). However, they walked more minutes (ΔM = 2,6) than the employees who strongly agreed with the statement (M = 14,0). See appendix C.41 for a table with more information.

The former was not the case within the office but the latter was (see paragraph 3.4.1). However, the difference in average between the ones who neither agreed nor disagreed and strongly agreed was larger within the office (ΔM = 4,2). The difference within the group of employees who agreed was the largest (SD = 17,4) compared to the group of employees who neither agreed nor disagreed (SD = 10,2) and strongly agreed (SD = 5,9).

Perceived organisational promotion of breaks

Most employees of *Aestate* strongly agreed or agreed with the statement "break is encouraged at work by the organization" (88%). Only two employees strongly disagreed or disagreed with the statement (13%) and nobody neither agreed nor disagreed. Comparably, most employees of *draaijer+partners* strongly agreed or agreed with the statement (83%). Only one employee neither agreed nor disagreed with the statement (17%). Nobody strongly disagreed or disagreed.

Due to the limited participants only two subgroups of *Aestate*'s employees can be compared: agree (n = 10) and strongly agree (n = 4). The other subgroups consisted of two or fewer responses. The employees of Aestate who agreed (M = 23,5) walked on average more minutes (ΔM = 12,6) than the employees who strongly agreed (M = 10,9). See appendix C.41 for a table with more information.

This was not the case within the office as there was only a difference of half a minute between these two groups. The difference within the group of employees who agreed was larger (SD = 15,6) compared to the group of employees who strongly agreed (SD = 4,6).

Activity profile

In the group of *Aestate*'s employees, there is a positive correlation between the minutes walked during working hours at home and the percentage of (1) general office work (r = 0,302, Sig. = 0,256, n = 16), and (2) undisturbed office work (r = 0,205, Sig. = 0,446, n = 16). And there are negative correlations between the minutes walked and the percentage of (1) telephoning (r = -0,293, Sig. = 0,271, n = 16), (2) archiving and document maintenance (r = -0,251, Sig. = 0,349, n = 16), and (3) planned meeting (r = -0,228, Sig. = 0,395, n = 16). The other correlations are relatively weak (r ≤ (-),084): interactive office work, unplanned meeting, reading and other activities. See appendix C.42 for a table with more information.

While there is a negative correlation with planned meetings within the home work environment, there is a positive correlation within the office in Odijk (see paragraph 3.4.1). And while there is a positive correlation with general office work and undisturbed office work within the home work environment, there is a negative correlation within the office in Odijk (see paragraph 3.4.1). Finally, while there were negative correlations with telephoning and archiving and document maintenance within the home work environment, there were only relatively weak correlations within the office in Odijk.

In the group of *draaijer+partners*' employees, there is a positive correlation between the minutes walked during working hours at home and the percentage of (1) other activities (r = 0,731, Sig. = 0,099, n = 6), (2) archiving and document maintenance (r = 0,656, Sig. = 0,158, n = 6), and (3) unplanned meeting (r = 0,588, Sig. = 0,220, n = 6). And there are negative correlations between the minutes walked and the percentage of (1) undisturbed office work (r = -0,414, Sig. = 0,414, n = 6), and (2) planned meeting (r =-0,301 , Sig. = 0,562, n = 6). The other correlations are relatively weak r ≤ (-),219): general office work, interactive office work, telephoning and reading. See appendix C.42 for a table with more information.

While there is a positive correlation with archiving and document maintenance within the home work environment, there is a negative correlation within the office in Utrecht (see paragraph 3.4.1). In both cases, there is a positive correlation with unplanned meetings (see paragraph 3.4.1). While there was a positive correlation with other activities within the home work environment, there was only a relatively weak correlation within the office in Utrecht. The opposite was the case concerning reading. Finally, while there was a negative correlation with planned meetings and undisturbed office work within the home work environment, there was only a relatively weak correlation within the office in Utrecht. The opposite was the case for interactive office work.

In both cases, home work environment and within the office in Groningen, there is a positive correlation with unplanned meeting (see paragraph 3.4.1). While there was a positive correlation with other activities and archiving and document maintenance within the home work environment, there was only a relatively weak correlation within the office in Utrecht. The opposite was the case concerning general office work and reading. Finally, while there was a negative correlation with undisturbed office work and planned meeting within the home work environment, there was only a relatively weak correlation within the office in Utrecht. The opposite was the case concerning interactive office work and telephoning.

In both cases, Aestate and draaijer+partners, there is a negative correlation between planned meeting and minutes walked during working hours at home. Contrastingly, there is a negative correlation with undisturbed office work within the group of draaijer+partners but a positive correlation within the group of Aestate. The opposite was the case concerning archiving and document maintenance. While there was a positive correlation with general office work within the group of Aestate, there was only a relatively weak correlation within the group of draaijer+partners. The opposite was the case for unplanned meeting and other activities. Finally, while there was a negative correlation with telephoning within the group of Aestate, there was only a relatively weak correlation within the group of draaijer+partners.

Workplace change

Half of the employees of *Aestate* indicated to change at home from workplace 1-2 times a week (50%). Other employees indicated to change less than once a week (19%) or never (31%) from workplace. Contrastingly, no employees of *draaijer+partners* indicated to change at home from workplace 1-2 times a week. They only change less than once a week (33%) or never (67%) from workplace.

Due to the limited participants, only the three subgroups of *Aestate*'s employees can be compared: never (n = 5), less than once a week (n = 3) and 1-2 times a week (n = 8). The other subgroups consisted of two or fewer responses. The employees of Aestate who indicated to change never from workplace (M = 15,3) walked fewer minutes (ΔM = 8,0) than the employees who indicated to change less than once a week from workplace (M = 23,3). However, the group who changed 1-2 times a week from workplace (M = 19,0) walked fewer minutes (ΔM = 4,3) than the employees who change less than once a week from workplace. See appendix C.43 for a table with more information.

Within the office, the more employees change from workplace, the more minutes they walked (see paragraph 3.4.1). The difference within the group of employees who indicated to change 1-2 times a week from workplace was the largest (SD = 17,2) compared to the group of employees who change less than once a week (SD = 12,8) or never (SD = 9,5) from workplace.

Days a week with 30 minutes or more physical activity

In both cases, there is a weak negative correlation between the minutes walked during working hours at home and the days a week with 30 minutes or more physical activity: *Aestate* (r = -0,202 , Sig. = 0,453, n = 16) and *draaijer+partners* (r = -0,220, Sig. = 0,676 , n = 6). See appendix C.44.

There was a stronger negative correlation within the office in Odijk (see paragraph 3.4.1). The opposite was the case within the office in Groningen (see paragraph 3.4.1). Within the office in Utrecht, there was a positive (see paragraph 3.4.1) instead of a negative correlation.

3.5 Focus groups

In this paragraph, the topics discussed in the focus groups are ordered by location, theme and organisation. All the text after mentioning an organisation belongs to the information discussed in the focus group of this organisation until the other organisation is mentioned. The transcriptions of both focus groups can be found in appendix E.

3.5.1 Office

In the focus group of *Aestate*, participants indicated to have a preference for workplaces on the ground floor (participant 4, 09:20; participant 1, 11:05; participant 5, 12:27; participant 6, 14:28). In general, argues participant 1 (11:59), the first one entering the office works on the ground floor and the second one works nearby him or her because it's pleasant. Only when all the workplaces on the ground floor are occupied, employees work on the first floor (participant 1, 11:59; participant 5, 12:27; participant 2, 13:45). The reason for this is the closeness to colleagues to feel connected (participant 4, 09:44). Participant 1 confirmed this and added to like having some noise around him or her (11:05). Also, participant 6 (14:28) likes the noise on the ground floor. More is happing on the ground floor (participant 5, 12:27). As shown in the spatial graph (see chapter 3.3.1), more workplaces are located on the ground floor than on the first floor and accordingly more employees can sit close to each other on the ground floor.

Also in the focus group of *draaijer+partners*, the preference for a workplace on the ground floor is stressed. Employees enter the office building on the ground floor in Groningen, so that's where people sit first (participant 2, 13:23). Only when it's busy, employees will sit on the first floor (participant 2, 13:23). Besides, participant 2 of draaijer+partners also indicated to like having some noise around him or her (15:05). Also at the office in Groningen, more workplaces are located on the ground floor than on the first floor (see chapter 3.3.1).

In general, participant 2 of *draaijer+partners* does not like workplaces that are isolated from the rest, but in some cases, this can be useful. If employees don't like the distraction, they sit in the corner on the first floor at the office in Groningen, or in the quiet room at the office in Utrecht (participant 2, 15:14). So not only the closeness to the entrance and colleagues determined the workplace choice.

This also holds for employees of *Aestate* according to the focus group. Participant 3 of Aestate (10:01) stressed the agreement of working in silence on the first floor. Participants 1 (11:59) and 6 (14:28) indicated to work on the first floor when they perform an activity where concentration is necessary. Moreover, only when it's on the first floor too noisy, participant 5 works on the first floor (12:27). Besides, if participant 6 works on the first floor to perform concentration work, s(he) prefers the workplace where colleagues who have a meeting do not walk by (18:26). This is confirmed by participant 4 (20:20). Also, participant 7 stressed the influence of activities on workplace choice (16:25). However, participant 7 works mainly on the first floor in a meeting room because of the many meetings and phone calls. In this way, (s)he does not disturb colleagues. In contrast to his or her colleagues, if (s)he performs an activity where concentration is necessary, (s)he works on the ground floor instead of on the first floor.

Also, participant 1 of *draaijer+partners* (14:43) stressed the influence of an (unspoken) agreement on workplace choice. Although both offices are activity-based work environments, there are unspoken rules regarding workplaces (participant 1, 14:43). The secretary is located close to the entrance at the office Utrecht (participant 1, 14:43). And also at the office in Groningen, the "permanent occupation" sits always downstairs according to participant 2 (13:23). This is also related to employees (main) activity.

But also the closeness to facilities (kitchen and toilet) are mentioned as a reason to work on the ground floor according to the employees of *Aestate* (participant 4, 09:44; participant 1, 11:05). Also, participant 6 (14:28) likes to work on the ground floor because of the closeness to certain types of facilities. (S)he indicated to walk more often to the coffee point than to a meeting room and therefore (s)he prefers to work on the ground floor: the same floor where facilities such as the coffee point are located. This is confirmed by participants 3 and 4 (11:54; 11:59). Closeness to the outside was also preferred by participant 6 (14:28). However, as participant 5 indicated (12:27), it is slightly less important the workplace is close to the coffee point compared to other aspects such as light. Moreover, walking upstairs to a meeting room is no problem for participant 1 (11:45). The distance is not that far according to participant 5 (12:27). Participant 2 (13:45) even stressed that the distance to facilities does not influence the workplace choice as it's not that far. In most cases, other aspects than the distance to facilities are mentioned first by the participants, indicating that distance to facilities is less important.

The importance of closeness to facilities is also discussed in the focus group of *draaijer+partners*. The coffee point and the toilet are located in the center of the office in Utrecht and as a consequence for each workplace, it is about the same distance to these facilities (participant 1, 8:48). There is only one group of workplaces that is very close to the coffee point (participant 1, 9:24). Compared to the first floor, the coffee point and lunch table are located on the ground floor of the office in Groningen (participant 2, 13:23). Therefore, if you work on the first floor in the office in Groningen, you have to go all the way down to get a drink (participant 1, 8:48). As a result, you will walk more if you want to do the same in the office in Utrecht whether there is COVID-19 or not (participant 1, 8:48). However, it is unsure whether employees prefer workplaces close to facilities (participant 1, 9:37). Participant 2 (10:08) agrees with participant 1 about this. Yet, according to participant 2 (16:27), it's not a problem if key office destinations are further away. The distances within both offices are so small that it does not influence employees workplace choice according to participants 1 (17:14) and 2 (17:10). You never have to walk a lot (participant 2, 17:17). The distances are larger in the office in Groningen than in Utrecht, but it's still not far (participant 2, 17:17). Thus according to participants 1 (17:43) and 2 (17:42), because the employees make the same amount of trips to key office destinations at both offices, but the distances are larger in the office in Groningen, employees walk more at the office in Groningen than in Utrecht. Besides, according to participant 2 (10:33), the vertical distance to the outside could be a barrier for movement. As the office in Groningen is on the ground and the first floor, it is easier to go outside than at the office in Utrecht which is located on the fifth floor. Moreover, the ground floor is used the most in Groningen (participant 2, 10:33).

As mentioned earlier, other characteristics of the workplace determine employees workplace choice such as a view to outside or colleagues according to participant 2 of *draaijer+partners* (16:27). Also, employees of *Aestate* stressed the preference for a workplace with a view to for instance colleagues (participant 6, 19:10) or the whole space (participant 5, 12:27). This not only holds for workplaces but also for meeting rooms. Participant 7 prefers a meeting room with an overview of the ground floor to see what is happing there (17:54). Also, participant 2 (13:45) indicated that it's nice to look away. A view to the outside is also attractive (participant 4, 09:20; participant 7, 16:25) but a view to a wall not (participant 6, 19:04). Besides, it's not preferred to sit with your back to your colleagues (participant 3, 19:39).

The employees of *Aestate* mentioned also the preference for a workplace with daylight (participant 4, 09:20; participant 3, 10:01; participant 1, 11:05) or light in general (participant 5, 12:27; participant 7, 16:25; participant 3, 19:39). Besides, participant 7 likes a workplace where opening a window for fresh air is possible (16:25). Participant 2 of *draaijer+partners* (13:23) think that the first floor at the office in Groningen is less cosy as it is a dark hidden corner (14:05).

Next, the furniture influences the workplace choice of the employees of *Aestate*. Participant 6 (14:28) remarked that the chairs and desks on the first floor were less easy to adjust in height. In addition, working under a sloping roof was unattractive (participant 6, 14:28). Also, the presence of a screen is an aspect that influences workplace choice (participant 6, 18:26). This also holds for the meeting rooms according to participant 4 (20:20) as the type of meeting determines the required furniture such as the type of chairs and desks. The type of chairs and desks are also stressed by participant 3 (21:39) as meeting room choice. (S)he stressed the relationship between the activity that is performed and the ability to sit and stand during this activity. If (s)he wants to sit down, the meeting room with steel chairs are not preferred but the one with textile chairs (participant 3, 21:39). The number of chairs, length of the table and size of the meeting room determine whether a meeting with a larger number of people can be held in this room (participant 6, 22:37). Even if the meeting room is not preferred because of the low air quality, the choice of the meeting room is restricted by its furniture and size (participant 6, 22:37). Another example is the presence of a screen (participant 6, 21:14). The meeting room choice is determined by furniture and not by the distance walked as confirmed by participants 1 (21:06) and 6 (21:14). Especially as the walking distances are limited (participant 7, 21:31). Another aspect that was mentioned, but less often, are workplaces with heating (participant 3, 10:01). Only participant 2 (15:14) of *draaijer+partners* mentioned the importance of furniture: (s)he also prefers a sit-stand desk.

Finally, participant 3 (10:56) of *draaijer+partners* states that the environment outside the office in Utrecht is not inviting to walk during the break. (S)he likes a park or nature instead of the actual office environment (11:33). According to participant 1 (11:56), there is a park nearby both offices. (S)he walks regularly with colleagues in the park nearby the office in Utrecht (11:56). For both offices, if you walk about 5 minutes you are in the greenery but apparently, participant 3 didn't know (participant 1, 11:56).

3.5.2 Office vs. Home

Mainly the work activity and related planning determine the amount of physical activity as stated by participant 3 (27:12) of the focus group of *Aestate*. The workplace choice of participant 3 (27:12) has nothing to do with how much (s)he walks.

As employees perform other activities at home than at the office, what an employee needs to move more is different at home than at the office according to an employee of *Aestate* (participant 1, 25:04). Accordingly, participant 6 (30:45) stressed that there is a large difference between her or his physical activity at home and the office. For example, participant 7 (16:25) indicates to perform concentrated work at home and, before the COVID-19 pandemic, participant 1 did not have such a busy meeting day at the office as now at home (26:22). At the office, participant 7 does not have meetings with clients but is available for elaboration or internal meetings (33:57). This results in more freedom to walk (participant 7, 33:57).

Also, the employees of *draaijer+partners* (participants 1, 15:54; participant 2, 15:55) stressed the difference in activities between the office and home work environment. Both agree that if you do not like noise around you and like workplaces that are isolated from the rest to avoid distraction, you can better stay at home. In addition, an employee of *draaijer+partners* (participant 2, 21:20) stressed the importance of multiple factors to increase employees' physical activity because the needed measures are personal. For instance, participant 1 (20:17) of draaijer+partners, does not want to move more in the future as (s)he already moves a lot during commuting.

Besides, an employee of *Aestate* indicates that (s)he walks more consciously at home (participant 5, 35:22). This is also stressed by the employees of *draaijers+partners*. Physical activity at home depends on discipline and is not depending on the role of colleagues (participant 1, 28:00; participant 2, 28:12; participant 3, 28:07).

Small movements in between work activities

There are not only differences in the amount of physical activity during a break but also during work. An employee of *Aestate* (participant 3, 28:52) said that the small movements in between such as getting a drink or food have a minimal impact on her or his total physical activity. However, (s)he (28:52) acknowledge that these small movements are extra moments to get up from your chair. An employee of draaijer+partners (participant 2, 24:53) use these short movements, such as getting a drink, to clear his or her head or if (s)he doesn't know what to do.

These moments are possible if you are not in an online meeting according to an employee of *Aestate* (participant 3, 28:52). At home, the meetings of participant 1 are scheduled shortly after each other and at the office, this is avoided (25:04). Accordingly, there is even no time to get up and get a drink (participant 1, 25:04) when working at home. Instead (s)he goes straight from one online meeting to another (participant 1, 25:04). Also, participant 7 (33:57) stressed that there is no walking time anymore as all meetings are planned directly after each other (participant 7, 33:57). According to her or him, suddenly in the COVID-19 pandemic, more meetings have to take place. Probably because people do not have to commute, so if it is possible then it fits (participant 5, 35:22). Before the COVID-19 pandemic, you needed to say "I can't be there at 11 am because at 9 am I have a meeting at another location" (participant 5, 35:22).

This problem is also discussed in the focus group of *draaijer+partners*. Especially if you have meetings the whole day it's harder to move (participant 2, 28:17). "If I wore the activity tracker today, it would measure ten steps. That's exaggerated, but it's really a few steps" (participant 2, 28:17).

This can be solved by making other agreements according to an employee of *Aestate* (participant 1, 25:04). For example, introduce a five-minute walk-in or plan only 50 minutes meeting (participant 1, 25:04). However, (s)he did not know why this was not happening already (25:59). There was only one person (s)he met who implemented this structurally (26:12). Also, participant 7 (34:47) mentioned planning five-minute breaks between meetings to walk downstairs to pee and get a drink. However, as stated by participant 7 (33:57) and in other words by participant 6 (30:45), if you plan 30-minutes between the meetings, you are not going to walk but instead for example checking your mail.

In contrast, at the office, an employee of *Aestate* walks more often to get a drink, bring another colleague a drink, or have a chat with a colleague (participant 3, 38:15). Participant 6 indicates also to walk more at the office as (s)he can walk to a colleague and ask a question (30:45). This was of course different during the COVID-19 pandemic as you needed to keep distance and therefore sometimes asked a question from your workplace as stated by participant 6 (30:45). Besides, participant 3 (38:46) noticed another reason to have fewer small movements in between work at home compared to the office "I am completely absorbed in my work and then I think oh it is already five o'clock". And participant 6 (38:58) has the idea that if (s)he takes a short walk in between at home, that (s)he is not doing anything. While at the office (s)he often walks in between to get a drink (for others) and talking for five minutes near the coffee point. "If I do this at home, I immediately get the idea of oh I have to continue with my work because I was busy" (participant 6, 38:58). At the office, (s)he is distracted by colleagues and as a consequence (s)he is less concerned with this (participant 6, 39:27). "At the office, it is much easier to be yanked out of work for a while" (participant 1, 41:00). For instance, walking together to get a drink or food (participant 1, 41:00).

Regarding the number of movements to for instance the toilet or coffee point, it does not matter if you work at the office or home according to employees of *draaijer+partners* (participant 1, 25:28; participant 2, 24:53). However, later, participant 2 (25:44) also indicated that at the office you walk to have a chat with a colleague. Maybe you do this with your roommate(s) at home, but this will be less than at the office according to participant 2 (25:44).

In addition, in between meetings at the office, an employee of *Aestate* walked downstairs to work behind a desk (participant 1, 26:22). Because at the office you want to isolate yourself for a while (participant 1, 26:22). Even if (s)he has a busy meeting day at the office, (s)he walks upstairs for a phone- or video call (participant 1, 26:22). While at home (s)he has a private room and therefore (s)he does not have to move to perform another activity. The room is multifunctional: from typing to having meetings. The only movement is when (s)he really needs to pee. Also, participant 6 (30:45) stressed the additional movements between his workplace downstairs and the meeting rooms upstairs. And also participant 2 (32:37) indicated to move more from (work)place to (meeting)place at the office compared to working at home. At home, there are not always alternative workplaces as in the case of participant 2 who has only one table (33:05). Besides, not every workplace at home is appropriate for online meetings: e.g. background and presence of other people (participant 2, 33:19).

The distance to the coffee point or toilet is also a lot larger at the office than at the home of an employee of *draaijer+partners* (19:00). So that makes a difference in walking (participant 1, 19:00). However, at a later moment, participant 1 says “you can’t call this movement” (24:36) and “just a few steps” (25:18) concerning these small movements in between. And still, after this, the participants (participant 1, 26:16; participant 2, 25:44) conclude that the difference in walking between the office and home environment is mainly caused by the small movements in between. All facilities you need are closer in the home work environment than at the office and therefore you have a lot less movement (participant 2, 25:44). This is also stressed by an employee of *Aestate.* Participant 6 (30:45) indicated to move almost not at home because his or her living space is only 20 square meters. (S)he is on the other side of the room with two steps (participant 6, 30:45).

However, one employee of *Aestate* (participant 5, 35:22) does not think that the amount of physical differs a lot during working hours at the office and home, the only thing that has changed is the walks outside during a break when working at home (35:22).

Longer moments of movement in a break

An employee of *Aestate* (participant 3, 38:15) noticed that (s)he is also less likely to walk during the work at home, but takes a long moment in the afternoon to walk outside. Participant 2 (32:37) indicated to moved longer during a lunch break at home and this is more than the sum of movement at the office from place to place.

Especially agendas of others are dominant in whether or not participant 3 (38:15) of the focus group of *Aestate* has time to walk. Some days are fully planned based on when everyone was able to meet. Sometimes (s)he even plans meetings is his or her break because then the meetings can at least take place (participant 3, 27:12). Participant 6 agrees with having meetings during lunchtime (30:45). In addition, participant 6 has other work-related plans around lunchtime (30:45).

The amount of physical activity between work is mainly dominated by the planning possibilities of externals according to an employee of *Aestate* (participant 3, 27:12). Participant 3 (28:04) indicates that it is possible to steer this. However, (s)he is inclined to adapt to the client wishes.

On days that are not fully planned there is time for a walk in the afternoon according to an employee of *Aestate* (participant 3, 28:43). For instance, when elaborating, it is easy to go for a 20-minute walk in the afternoon (participant 3, 28:04). This is also confirmed by an employee of *draaijer+partners*. Of course, it has to fit into your schedule too (participant 2, 23:37). On busy days, it's more difficult to choose to go for a walk, because it often takes a little longer than your normal lunch break might take (participant 2, 23:37). And of course, it depends also highly on the weather (participant 2, 28:17).

At the office, during the COVID-19 pandemic, an employee of *Aestate* (participant 3, 30:04) indicated to move less than at home during breaks. Because (s)he wants to use the break to socialise with his or her colleagues as (s)he finally saw them instead of going for a walk (participant 3, 30:04). Participants 5 complies with him or her (36:29). In that case, your colleagues have to go with you for a walk to combine the two activities (participant 3, 30:04). However, people do not start and end their break at the same time (participant 3, 30:04). The employees have to align their breaks to go for a walk outside together. As a result, you will sooner all sit together at a table (participant 5, 36:29). If there are specific colleague's at the office, participant 1 of the focus group of *draaijer+partners* (23:23) goes for a walk with them.

During a break at home, it is also possible to socialize and call a colleague, but it stays possible to walk at the same time according to an employee of *Aestate* (participant 5, 36:29). At home, participant 5 (36:29) walks during the break because (s)he is alone: "I don't feel like sitting at the table alone" (participant 5, 36:29). Participant 6 (37:17) has an opposite experience. As (s)he is home alone, (s)he prefers not having a (long) break. In that case, (s)he is done earlier and is, therefore, able to meet earlier with his home mates at the end of the workday (participant 6, 37:17). Also, participant 6 prefers to work on and stop half an hour earlier and then go outside for a walk (30:45). This also holds for an employee of *draaijer+partners*. At the end of the day, you should have produced a certain amount of work (participant 2, 29:03). If you have very often a (short) break during the day, then you are finished later (participant 2, 29:03). As a consequence, you don't have time to, for example, exercise at the end of the day (participant 2, 29:03). An employee of draaijer+partners is forced to go for a walk at home because of having a dog and therefore (s)he walks more at home than at the office during working hours (participant 1, 26:20).

However, at the office, most of the time a colleague asks to have lunch and this doesn't happen at each home and therefore employees continue working without having a (lunch) break according to all the participants of the focus group of *draaijer+partners* (participant 1, 30:34; participant 3, 30:45; participant 2, 30:55). And at a day at the office, the employees of *Aestate* sometimes walk to the supermarket near the office in their break (participant 6, 30:45).

You have to schedule moments for yourself according to an employee of *draaijer+partners* (participant 2, 28:17). Some colleagues already planned a lunch break or walk in their agenda's according to participant 1 (29:27). Participant 3 (29:47) for example, walks every week an hour with a colleague. However, it is easy to replace these moments with other appointments (participant 1, 29:27). It is the first thing you can move because it's an appointment with him- or herself (participant 2, 30:03; participant 3, 30:09; participant 1, 30:10). "I now have blocked lunch in my agenda, because at a certain point I noticed that I was in meetings the whole time and I thought I also have to eat" (participant 2, 30:10). Normally at the office you have a lunch break, but at home, you suddenly do this less frequently and this is of course not good (participant 1, 30:21). You really must have time for moments of movement, plan these moments and have the discipline to do it (participant 3, 29:53; participant 1, 30:01).

One employee of *Aestate* (participant 6, 32:16) indicates to think that (s)he has no time for a walk outside, although this is not necessarily true or because of feeling organisational pressure. Also at

draaijers+partners, it's accepted in the organisation to go for a walk (participant 2, 23:37). Moreover, (s)he thinks that everyone cheers (participant 2, 23:37).

Also, facilities in or around the office can help according to the employees of *draaijer+partners*, such as a table tennis table or even a gym (participant 2, 21:20). Participant 2 (27:19) stressed the combination of relaxing and physical activity. For instance, a table tennis table can help to clear your head, be physically active and to socialise (participant 2, 27:19) or table football (participant 1, 27:41). However, this makes a lot of noise in the office which can be annoying for others (participant 2, 27:47).

Standing, walking and cycling during work activities

An employee of *Aestate* chooses a meeting room where standing during a meeting is possible (participant 3, 29:34). And as stressed by an employee of *draaijer+partners*, it's a mindset, but if for instance, you want to stand, you need to be able to stand behind your (sit-stand) desk (participant 2, 21:20). This also holds for the furniture in meeting rooms according to this employee (participant 2, 21:20). The sit-stand desks are a lot more successful (participant 2, 22:50) than the desk bikes (participant 1, 22:58; participant 2, 22:58).

In contrast, walking during a meeting is most of the time no option according to an employee of *Aestate* (participant 3, 29:34). This is because you have to show things on the screen and explain this and/or guide a session (participant 3, 29:34). For instance during a meeting with external parties where you have to take notes or show something (participant 4, 40:31). However, it is possible with a meeting with a colleague, an internal meeting, where you don't need to grab something (participant 3, 29:34). But this type of meeting is very limited (participant 3, 29:34). Participant 5 (35:22) indicated that (s)he walks more at home, because (s)he walks during the break and internal meetings unless the weather is really bad. During an internal meeting with one colleague, participant 4 and his/her colleague always ask "shall we walk?" (participant 4, 40:31). Also, participant 1 (41:00) agrees that it works internally, not always, but the intention is there.

An employee of *draaijer+partners* (Participant 3, 20:33) proposed walking routes for meetings: a different walking route for a different time. However, this is not feasibly for every meeting (participant 3, 21:08). It's easy during a meeting with two persons or to catch up. This relates to walking during internal meetings as discussed by the employees of *Aestate*.

Another employee of *draaijer+partners* (participant 2, 24:40) noticed that (s)he always walks during a phone call, a habit that a lot of people have including participant 3 (24:50).

3.6 Evaluation method

Walking

Employees' physical activity was measured by both objective and self-reported measures. As discussed in chapter 2, objectively measure physical activity was preferred as previous studies stressed the limitation of self-reported measures and subsequently advised using objective measurements in further studies. However, due to the COVID-19 pandemic employees worked at home and were only allowed to work at the office in special cases at the time of this study. As a result, employees' physical activity within the office had to be measured by using a self-reported measure. Nevertheless, an objective measure was used to measure employees' physical activity within the home work environment. In this paragraph, first, the objective measure of physical activity is examined and secondly the self-reported measure.

An activity tracker was used to measure employees' step count within the home work environment. The employees needed to wear the same type of activity to be able to compare the steps. The strengths of the used activity tracker were the: possibility to export the steps per minute, battery duration, comfortability, possibility to delete data afterwards and price. However, the activity tracker also had some important limitations. The employees had to install the activity tracker, export and upload the activity data and delete the data afterwards themselves. The most problematic issue was that almost 25% of the employees of Aestate got an empty csv file when exporting the activity data. And even when the csv file was not empty, there were still days with incomplete activity data. Besides, days including a possible trip by car needed to be excluded as the activity tracker measured steps in the car. As a consequence, the average step count per participant was calculated based on different amounts of days ranging from one to five days.

A self-report survey was used to measure employee's physical activity in terms of minutes and percentage of walking. As the percentage of walking was included in previous self-report surveys, this was also included in this research. However, because answering in minutes seems easier for the participants and is more meaningful than the percentage this was also included in the self-report survey. Whereas the indicated maximums in minutes were 45, 45 and 60, the indicated maximums in percentage were 30, 10 and 13. Assuming that a workday consists of on average 8,5 hours, these percentages correspond with respectively 153, 51 and 66 minutes. The time walked in percentage is perceived as more compared to minutes. Moreover, in which office is walked more differs depending on the type of measurement: minutes, percentage and perception. As the minutes seem most reliable, this is used as the main variable and is compared with all the independent variables. Nonetheless, the difference is valuable information to measure the difference in perception between groups of employees.

Besides, there is a considerable amount of non-response when asking for both minutes as well as percentage walked. Some participants answered "0" or "1" minute which is impossible as an employee already needs to walk for instance from the parking space to the workplace and from the workplace to the toilet. This also holds for the answer "0" to percentage walked. Besides, some employees did fill in the minutes, but not the percentage. Furthermore, it was even more problematic for the question about the minutes of physical activity during commuting as a lot of participants answer "0" minutes. Also when employees went by car, they need to walk to and from their car.

Stair use

Stair use was measured by logging movement patterns and reasons for movement for five consecutive days. Only one respondent did not indicate the climbed stairs within the home work environment. Due to the COVID-19 pandemic, the movement patterns and reasons for movement including stair use of an average working day at the office were reported in the logbook based on employees' memory. Logging it for five consecutive days is more representative as it is less dependent on forgetting to log short and unplanned movements. Yet, logged stair use presumably results in an underestimation of stair use.

Movement patterns and reasons for movement

As just mentioned, the movement patterns and reasons for movement were logged for five consecutive days and due to the COVID-19 pandemic, the movement patterns and reasons for movement of an average working day at the office were reported in the logbook based on employees' memory.

The strength of the logbook was the quantification of movement patterns and reasons for movements. It helped to understand the physical activity outcomes and the difference between

organisations, locations and employees. Besides, the logged five consecutive days in combination with the used activity tracker, the steps per reason for movement could be calculated. Although participants thought that some reasons for movement caused a limited amount of steps, the data of the activity tracker in combination with the logbook resulted in contrasting conclusions.

However, it was both for the researcher and the participant a time-consuming task. As a consequence, it was especially disappointing that not all logbooks could be used because of the problems with the activity tracker as described before. Also, the opposite existed, complete activity data but an incomplete logbook. For 31% of the participants of Aestate with complete activity data, it was impossible to connect the logbook with the activity data for at least one day. For only one of the participants of Aestate, it was possible to connect the logbook with the activity data for at least one day, but not for all full working days at home. Also, due to the time it consumes and the number of tasks, the chance for drop-outs is relatively high. Two out of ten participants of draaijer+partners did not participate in this part of the study. Also, two of them did not hand in their activity data and logbook. Only one of the participants of Aestate did not hand in the activity data and logbook. As a result of these limitations, only a relatively small number of logbooks could be used.

Although logging an average office day is for both the research as well as the participants less time consuming, it only measures the number of trips for each reason and destination. The minutes per reason or destination cannot be calculated. Besides, a considerable number of participants forgot to log their average working day at the office: one out of the four participants of Aestate who worked before the COVID-19 pandemic at the office in Odijk. Furthermore, 40% of the participants who worked at the office in Utrecht and 67% of the employees who worked at the office in Groningen forgot to log this. This low response is probably caused by the combination with logging for five consecutive days. Next to logging for five consecutive days, it does not feel natural to log an average working day at the office.

Only the main reason for movement is asked for although participants can perform multiple activities at destinations. Besides, some participants combined multiple trips within one trip (e.g. toileting and getting a drink) and do not mention small stops for performing a short activity (e.g. do participants take their laptop to the toilet or are they first going to their workplace to leave their laptop when coming from a meeting room, the same holds for coffee). And especially in the logged average working day at the office, the chance of not logging short and unplanned movement is high (i.e visit a colleagues workplace to ask a question or get a drink for a colleague) because some participants only mention the most important stops. And even the most important stops are sometimes forgotten (i.e. toilet visits). The logged average working day thus presumably results in an underestimation of the number of trips, certainly more compared to logging five consecutive days. Additionally, it does not fully take into account the influence of movement patterns and reasons for movement of other people in the office building. For example, most participants of Aestate indicated to work at workplace B, however, in reality, not all these participants can work at workplace B at the same moment. It is unknown what would happen if workplace B is occupied. Nonetheless, it represents the popularity of the workplace. In both measurements, the specificity differs a lot between participants. Even logging five consecutive days is a limited representation of reality. The representation of reality is especially important as the movement patterns and reasons for movement depend on details in the spatial social environment. The logbook quantifies the movement patterns and reasons for movement but stays a subjective measurement.

Although the destination of movements is studied in this way, the route to these destinations is unknown. Whether a participant takes the shortest path or not is influenced by the spatial and social environment and accordingly affects the amount of physical activity within the office building and the home work environment.

Arrangement of spaces

The ability to measure the arrangement of spaces objectively by a spatial graph is a strength of the method. Compared to previous studies, this method is transparent and therefore easy to replicate. Where most existing studies are vague regarding the variables related arrangement of spaces and their measurement, this study is not. For example, a “centralised staircase” is now clearly defined and quantifiable. This makes it easy to compare offices. Moreover, by abstracting the floor plan(s) (i.e. translating to a spatial graph), the only information that is important for movement remains. There is no distraction from irrelevant parts.

However, the abstraction level has also a limitation. For instance, a workplace node consisting out of multiple workplaces: the workplaces within a node are not equal to each other in the arrangement of spaces. In the focus group, employees stressed their preferred workplace within a workplace node (e.g. workplaces with a lot of movement behind their back are not preferred).

Because of the COVID-19 pandemic, no site audits were possible and therefore the arrangement of spaces was solely calculated based on the information in the floor plans. However, the floor plans were incomplete (e.g. missing furniture) or floor plans of office building parts were missing entirely (e.g. ground floor office Utrecht). This missing information does influence the spatial graph: the nodes (e.g. missing football table within a hall) and the edges between them. Besides, without observations or contact with employees, it is difficult to guess the activities of the zones (i.e. nodes).

Survey

Most respondents indicated the survey to be complicated and long being caused by asking for the situation in multiple periods (i.e. before the COVID-19 pandemic, June till September 2020 and from October 2020) and physical activity at different moments (i.e. working hours, commuting, spare time) and locations (i.e. office(s) and home work environment). However, measuring a large number of independent variables gives a complete picture of what elements could influence participants’ physical activity.

Focus group

The focus group helped to understand the quantitative results. However, due to the amount of the produced quantitative data and the limited time of a focus group, not all quantitative results could be discussed. Only the most critical findings were discussed.

4. Discussion & Conclusion

As explained in the introduction (chapter 1.3), the main aim of this research is to develop an enhanced method to answer the following research question:

> How can the arrangement of spaces within the office building and the home work environment stimulate office employees' incidental physical activity in terms of walking and stair climbing?

The enhanced method (see chapter 2) is tested, refined and retested. Some results about the relation between the work environment and office employees' incidental physical activity produced by the data acquired through the test and retest of the method are presented (see chapter 3.1-3.5). Besides the results about the method are discussed based on the test and retest and its primary results (chapter 3.6).

In this chapter, the main strengths and limitations of the research are discussed and also preliminary conclusions are drawn based on the primary results of the method. The chapter and report end with recommendations for (1) further improvements of the method, (2) further research, and (3) practice to stimulate office employees' incidental physical activity within the work environment.

4.1 Discussion

The enhance method is tested and retested on limited cases and participants. As a consequence, in some cases, the number of participants per subgroup was extremely low. Besides, due to the COVID-19 pandemic, self-reported physical activity (office) is compared with objectively measured physical activity (home) which makes a part of the findings questionable. In addition, physical activity within the home work environment is measured objectively during the COVID-19 pandemic and the self-reported physical activity within the office building was of the period before the COVID-19 pandemic. In the situation before the COVID-19 pandemic, employees' physical activity within the home work environment can be very different. Moreover, it is questionable whether the work situation after the COVID-19 pandemic will be the same as before the COVID-19 pandemic. The future of work is likely to be hybrid. So both the physical activity within the office building and home work environment is likely to be different in the future, due to the difference in work activities within the work environments

Strengths

In this field, this is the first cross-sectional study using an explanatory sequential mixed-method research design. None of the existing studies focused on both the spatial as well as the social environment. Besides, both physical activity within the office building and the home work environment are explored. Moreover, this study combined the strengths of the applied methods in previous studies and improved them. The enhanced method includes a diversity of data collection methods which increased the diversity of data and its possibilities for analysis. Especially the objective measurement of the arrangement of spaces and physical activity in combination with self-reported

physical activity is a clear strength. But also the quantification of the movement patterns and reasons for movement and related steps was an advantage compared to previous studies.

Limitations

Unfortunately, a significant amount of physical activity data was missing due to the dysfunction of the used activity tracker and its app. Besides, the activity tracker measured steps in the car. As a consequence, the average step count per participant was calculated based on a different amount of days ranging from one to five days. Regarding self-reported physical activity, the results differed depending on the type of measurement: minutes, percentage and perception. Moreover, there is a considerable amount of non-response when asking for both minutes as well as percentage walked.

The logbook was both for the research and the participant a time-consuming task. This resulted in a relatively high number of drop-outs. Besides, it was impossible to connect some of the logbooks with the physical activity data as some logbooks were incomplete. As a result of these limitations, only a relatively small number of logbooks could be used. And even when the logbooks were complete, the logbooks were a limited representation of reality, especially concerning the average working day. Although the destination of movements is studied in this way, the route to these destinations remains unknown.

Other important limitations are the incompleteness of the floor plans and difficulties to guess the activity of zones, the complicated and long survey and the limited time of the focus groups to discuss all the quantitative results.

See table 4.1 for an overview of the main strengths and limitations of the enhanced method.

Strengths	Limitations
Explanatory mixed-method research design: spatial & social environment	Missing physical activity data & measured steps in the car
Office building & home work environment	Differences and non-response in self-reported physical activity
Combined the strengths of the applied methods in previous studies and improved them	Time-consuming for both the researcher and the participant (drop-outs)
Diversity of data (collection methods) and its possibilities for analysis	Unable to connect some of the logbooks with the activity data
Objective measurements of arrangement of spaces & physical activity in combination with self-reported physical activity	Representation of reality, especially concerning the average working day
Quantification of movement patterns and reasons for movement and related steps	Unknown routes
	Incomplete floor plans & difficulties to guess the activities of the zones
	Complicated and long survey
	Not all quantitative results could be discussed in the focus group

Table 4.1 Main strengths and limitations of the enhanced method (own table).

4.2 Conclusion

The research question is divided into two sub-questions: 1) How physically active are office employees in terms of walking and stair climbing in a different arrangement of spaces within the office building and the home work environment? 2) What spatial, social and personal factors support and inhibit walking and stair climbing within a different arrangement of spaces within the office building and the home work environment? First, the sub-questions are answered and accordingly the main research question. The number of cases and participants is limited, but within this group, the aspects discussed in this subchapter stood out.

1 | How physically active are office employees in terms of walking and stair climbing in a different arrangement of spaces within the office building and the home work environment?

The employees who worked at the office in Groningen indicated to walk the most minutes (M = 35) compared to the employees who worked at the office in Odijk and Utrecht (M = 23). On average five stairs were climbed and twenty-one trips were made at the office in Odijk. The employees of draaijer+partners (M = 20) walked slightly more minutes than the employees of Aestate (M = 19) at home. They not only walked more minutes, but they also climbed more stairs than the employees of Aestate, respectively eight and five stairs. Besides, they (M = 17) made more trips compared to the employees of Aestate (M = 15). See figure 4.1 for the minutes of walking a day during working hours in each studied work environment.

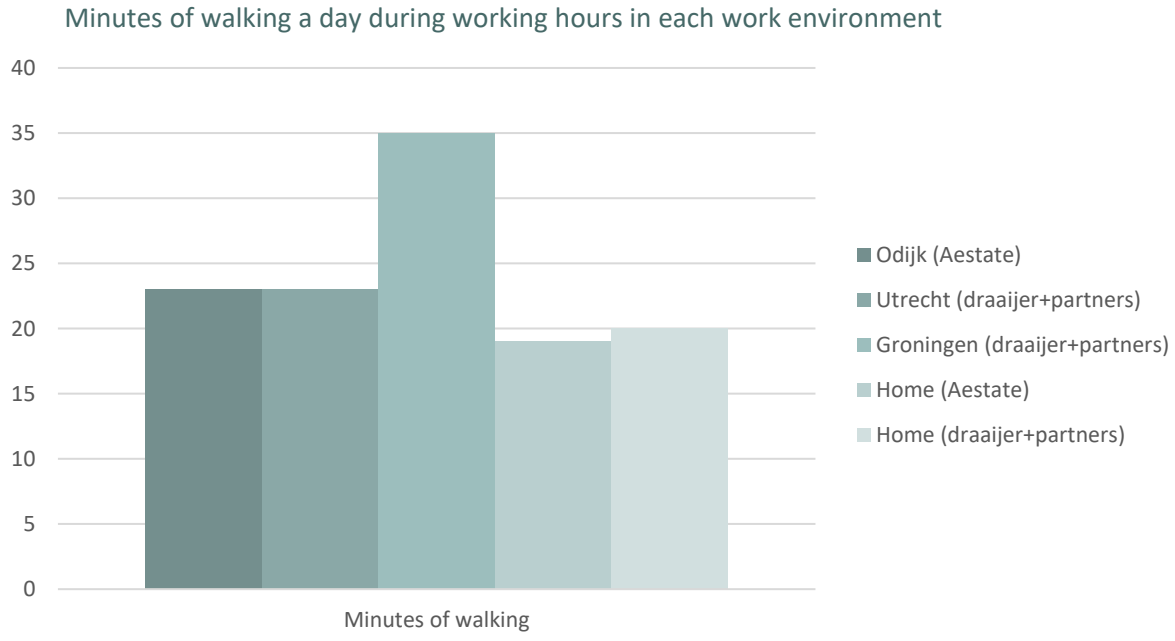

Figure 4.1 Minutes of walking a day during working hours in each work environment (own figure).

2 | What spatial, social and personal factors support and inhibit walking and stair climbing within a different arrangement of spaces within the office building and the home work environment?

Arrangement of spaces

The difference in minutes walked between the three offices corresponds with the radius and diameter of the spatial graph, as the radius and diameter are the highest in the office in Groningen and are the same in the office in Odijk and Utrecht. Besides, compared to the office in Odijk and Utrecht, the office in Groningen has multiple workplaces in the periphery. Consequently, the workplaces within the office in Groningen are less centrally located than within the office in Odijk and Utrecht. See figure 4.2.

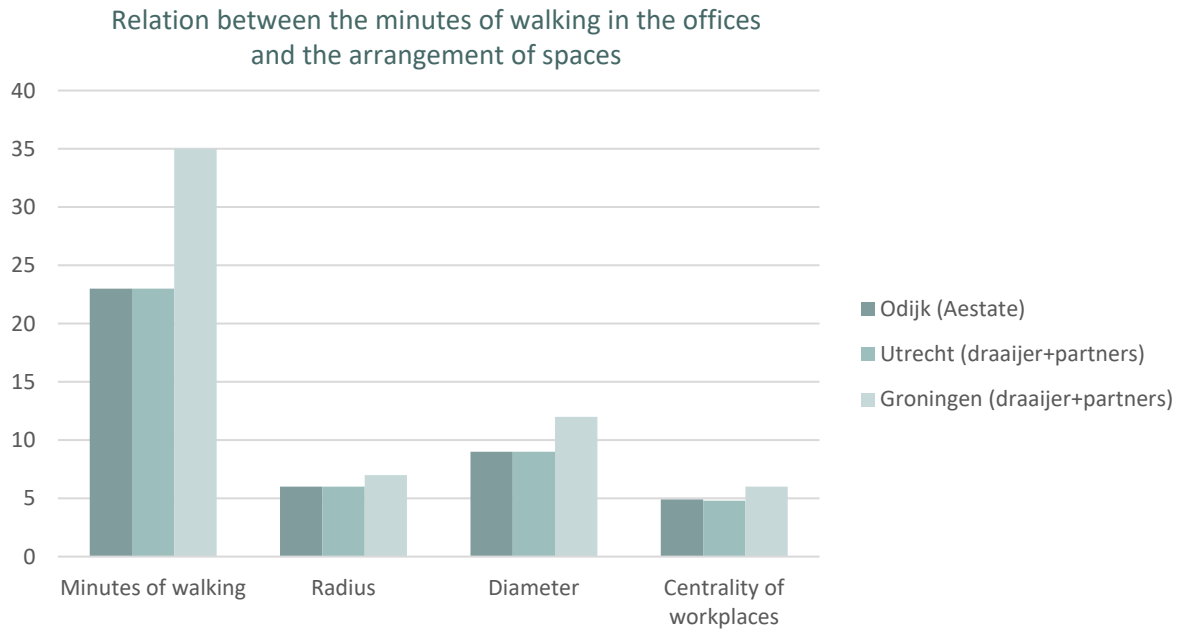

Figure 4.2 Relation between the minutes of walking in the offices and the arrangement of spaces (own figure).

As confirmed by the focus groups, this difference in minutes walked could be caused by the arrangement of spaces. The distances within all the offices are so small that it does not influence the number of trips and therefore more minutes are walked within the office in Groningen as in this office the distances are the largest. Therefore, the distances to key office destinations are in all cases not the main reason for employees workplace choice according to the focus groups.

However, the degree, periphery, distance to other workplaces and entrance does influence employees workplace choice. But this mainly derives from non-arrangement of spaces related factors such as contact with colleagues, performing undisturbed work, a view and (day)light according to the focus groups. These reasons indirectly influence employees physical activity as the location of the workplace determines the distance walked to office locations assuming that the number of trips stayed the same despite the distances.

Reasons for movement

The largest differences in reasons for movement between the office in Odijk and the home work environment of Aestate's employees is in (1) getting a drink, (2) (online:) planned meeting, (3) lunch break, (4) getting food, (5) toileting, and (6) walk outside (see figure 4.3). In the office in Odijk, the employees walked more often for getting a drink, (online:) planned meeting and lunch break, but walked less for getting food, toileting and walk outside. The differences regarding getting a drink, (online:) planned meeting, lunch break and walk outside are confirmed and explained by the employees in the focus group.

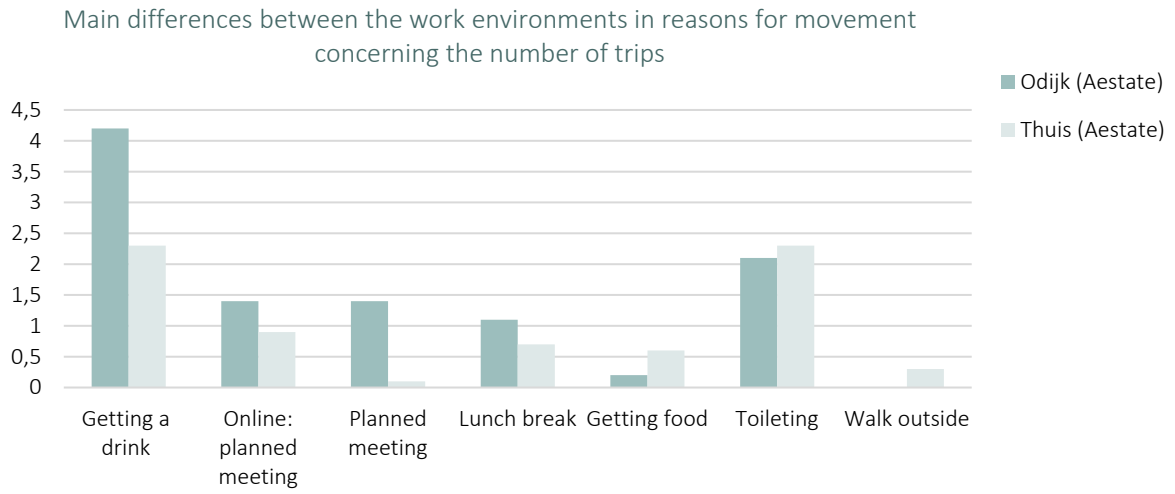

Figure 4.3 Main differences between the work environments in reasons for movement concerning the number of trips (own figure).

The largest differences in minutes walked between the employees of Aestate and the employees of draaijer+partners for reasons for movement within the home work environment are in (1) walk outside, (2), getting a drink, (3) telephoning, (4) toileting, and (5) lunch break. The employees of draaijer+partners walked more minutes for a walk outside, getting a drink and telephoning, but walked fewer minutes for toileting and lunch break. See figure 4.4.

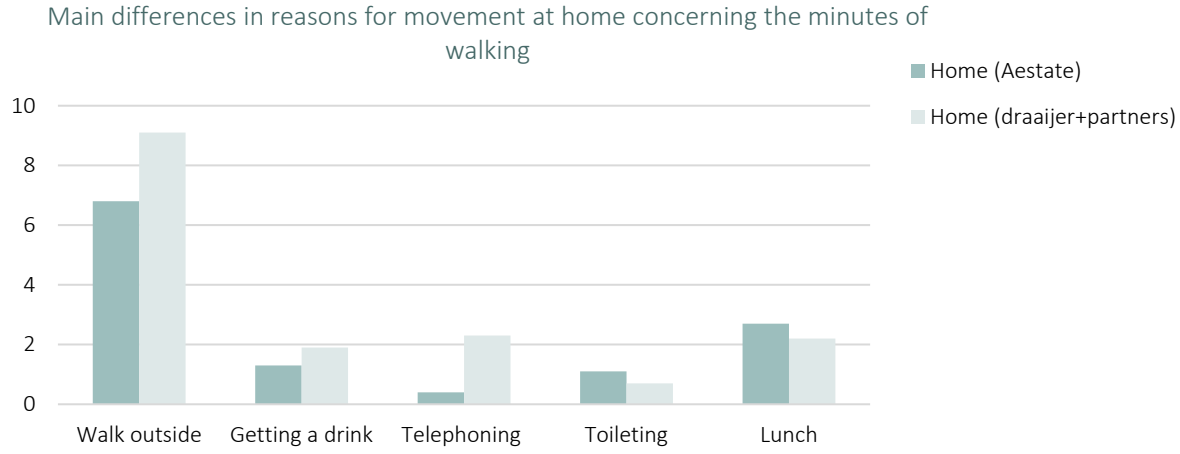

Figure 4.4 Main differences in reasons for movement at home concerning the minutes of walking (own figure).

Differences within groups of employees

The largest difference in mean minutes walked within the home work environment between Aestate's employees is in (1) perceived organisational promotion of breaks, (2) education level, and (3) perceived organisational attention to health and vitality. The employees of Aestate who agreed with the statement "break is encouraged at work by the organization" walked on average more minutes (ΔM = 12,6) than the employees who strongly agreed. The employees who had an education level of WO walked on average more minutes (ΔM = 11,2) than the employees who had an education level of HBO. This can be explained by the difference in work activities. The employees who neither agreed nor disagreed and agreed with the statement "the organization pays enough attention to health and vitality" walked on average more minutes, respectively 6,4 and 6,9 minutes than the employees who strongly agreed. See figure 4.5.

The largest difference in mean minutes walked within the office in Odijk between Aestate's employees is in (1) workplace change, (2) education level and, (3) perceived organisational promotion of breaks. The employees of Aestate who indicated to change from workplace several times during the day walked on average more minutes (ΔM = 9,0) than the employees who indicated to change from workplace at the start of each day. The employees who had an education level of WO walked on average more minutes (ΔM = 8,7) than the employees who had an education level of HBO. This can be explained by the difference in work activities. The employees who neither agreed nor disagreed with the statement "break is encourage at work by the organization" walked on average more minutes (ΔM = 7,5) than the employees who strongly agreed. See figure 4.5.

The influence of workplace change in the office and work activities (education level) in both work environments on physical activity are confirmed and explained by the focus group. In general, the difference between groups of Aestate's employees is larger within the home work environment than within the office in Odijk. Except regarding the perceived managerial support to health and vitality and workplace change. The difference between the two genders is relatively small and comparable between locations. See figure 4.5.

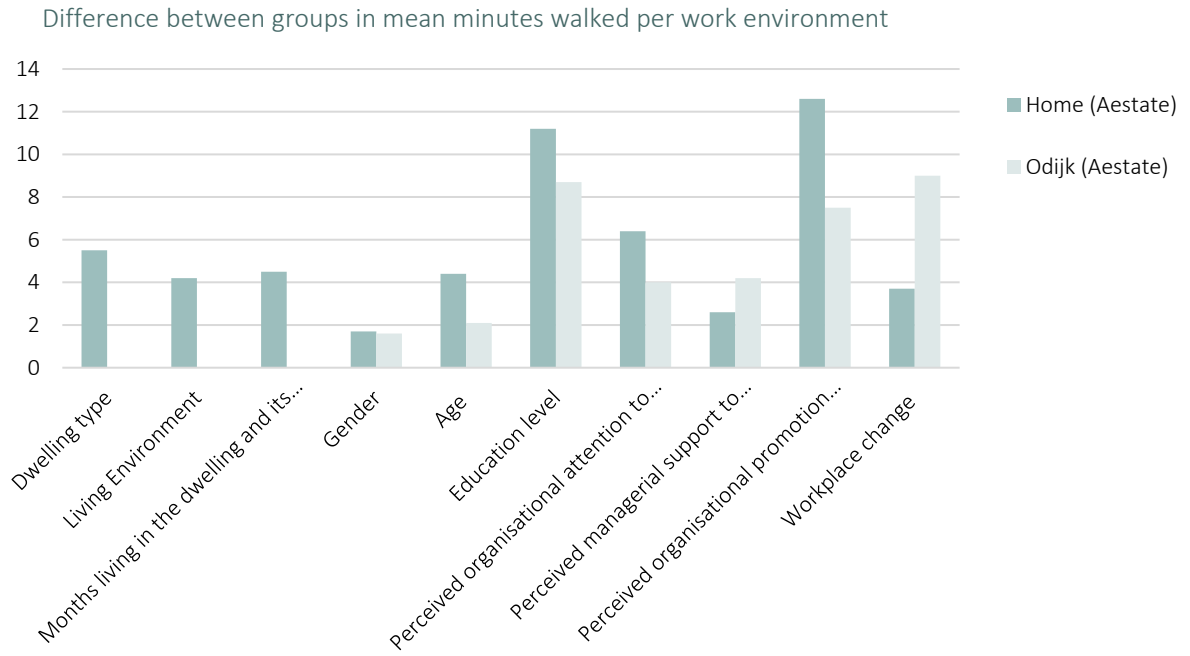

Figure 4.5 Difference between groups in mean minutes walked per work environment (own figure).

Concerning correlations, within the home work environment working for Aestate, the largest correlations are between the minutes walked and (1) general office work, (2) telephoning and (3) archiving and document maintenance (see figure 4.6). There is a positive correlation with general office work and negative correlations with telephoning and archiving and document maintenance. The influence of general office work on physical activity is confirmed and explained by the focus group but the influence of the other activities not. Within the home work environment working for draaijer+partners, the largest correlations are between the minutes walked and (1) archiving and document maintenance, (2) unplanned meetings and, (3) undisturbed office work (see figure 4.6). There are positive correlations with archiving and document maintenance and unplanned meeting and a negative correlation with undisturbed office work.

Within the office in Odijk the largest correlations are between the minutes walked and (1) planned meeting, (2) days a week with 30 minutes or more physical activity and (3) general office work (see figure 4.6). There is a positive correlation with planned meetings and negative correlations with days a week with 30 minutes or more physical activity and general office work. The influences of all three factors on physical activity are confirmed and explained by the focus group. Within the office in Utrecht the largest correlations are between the minutes walked and (1) days a week with 30 minutes or more physical activity, (2) interactive office work, and (3) archiving and document maintenance (see figure 4.6). There is a positive correlation with days a week with 30 minutes or more physical activity and negative correlations with interactive office work and archiving and document maintenance. Within the office in Groningen the largest correlations are between the minutes walked and (1) general office work, (2) telephoning, and (3) interactive office work (see figure 4.6). There is a positive correlation with general office work and negative correlations with telephoning and interactive office work.

Thus, in each work environment, other aspects play a role. However, within the home work environment both the employees of Aestate and draaijer+partners stressed the negative effect of planned meetings on physical activity during the focus group.

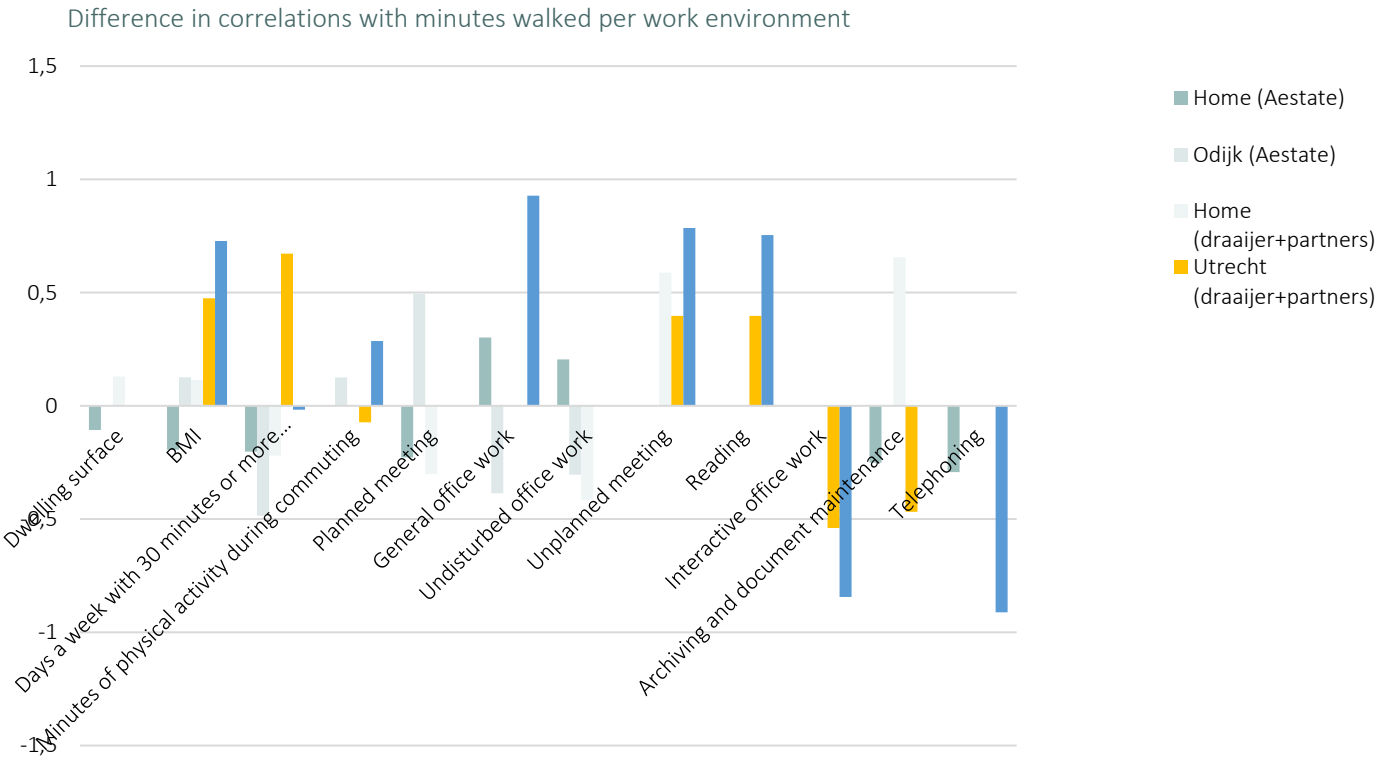

Figure 4.6 Difference in correlations with minutes walked per work environment (own figure).

How can the arrangement of spaces within the office building and the home work environment stimulate office employees' incidental physical activity in terms of walking and stair climbing?

In offices where the maximum distance between office locations is relatively small, the distance between workplaces and key office destinations could be maximised to stimulate office employees' incidental physical activity in terms of walking as this does not influence the number of trips to key office destinations. Besides, placing workplaces further from the entrance also helps as employees are inclined to place themselves close to the entrance. Because most employees like to be close to colleagues it could help to place groups of workplaces further from key office destinations. It is also important to make the least central workplace more attractive than others regarding the degree, view to outside and colleagues, (day)light, heating, fresh air and furniture. Finally, it could help to place workplaces for performing undisturbed work further from the group of workplaces in the periphery with a low degree and also further from the key office destinations.

Also, employees who changed less from the workplace, have an education level of HBO (particular work activities), or agree or strongly agree with the statement "break is encourage at work by the organization" walked on average fewer minutes at the office. These groups need some attention regarding physical activity. These groups of Aestate's employees also need more attention: employees who perform relatively fewer planned meetings, are more days a week 30 minutes physical active in spare time and perform relatively more general office work. In the office in Utrecht, employees who are on fewer days a week 30 minutes physical active in their spare time, perform relatively more interactive office work and archiving and document maintenance need more attention. In the office in Groningen, employees who perform relatively less general office work and relatively more telephoning and interactive office work need more attention. In general, more walks outsides when working at the office could increase physical activity with the home work environment as an example. By for instance planned walks with colleagues according to the focus group.

Within the home work environment, the employees of Aestate who strongly agreed with the statement "break is encouraged at work by the organization", or with an education level of HBO, or who strongly agreed with the statement "the organization pays enough attention to health and vitality" need some attention regarding physical activity. As the differences between groups of employees are larger within the home work environment than within the office, more attention is needed to employees' physical activity within the home work environment. The employees of Aestate who need attention are: who perform less general office work, more telephoning and archiving and document maintenance. The employees of draaijer+partners who need attention are: who perform less archiving and document maintenance and unplanned meeting and perform more undisturbed work. As stressed in the focus group, especially employees who have relatively more planned meetings have low physical activity levels. In general, more incidental physical activity can be realised by moving more often for getting a drink, planned meetings and lunch breaks with the office environment as an example. Besides, a walk outside, walking for and during telephoning and a break, for getting a drink and toileting can increase the minutes walked with other organisations as an example. The main barrier to move for most of these reasons is the high level of planned meetings.

4.3 Recommendation

Further improvements of the method

Further improvements of the method are necessary as the developed method holds important limitations as discussed in detail in chapter 3.6 and summarised in chapter 4.1. The method is time-consuming for both the participants as well as for the researcher, especially the logbook. Particularly improvements of this element are important to increase the number of participants. In this paragraph, recommendations for further improvements of the method are discussed and accordingly an improved version of the initially developed method is presented which can be used in further research.

An objective and more automated method is required to study employees movement patterns and reasons for movement by using for example sensors and/or an activity tracker that tracks the routes of employees within the work environment. This makes it (1) less time-consuming for both the research and the participants, (2) easier to connect the possible logbooks with the activity data, (3) a better representation of reality, and (4) possible to study the routes of employees. However, by using sensors, the difference between employees regarding movement patterns and reasons for movement cannot be studied and is not possible within the home work environment. Nevertheless, it can complement the data derived from the activity tracker and the logbooks, especially when only a select group of employees fill in a logbook as described below.

Another option is to study the movement patterns and reasons for movement of only a select group of employees when in-depth research is necessary for certain groups. It is possible to start with measuring the step count of employees of different organisations by an activity tracker. Based on the results, a select group of employees is asked to log their movement patterns and reasons for movement and wear the activity tracker again at for instance solely office days. Logging an average working day does not represent reality and is therefore not advised despite the limited time it consumes. Also reducing the measurement period of five consecutive days is not advised as there may be a large difference between days in physical activity.

A third option is to conduct observations to make it less time-consuming. Due to the COVID-19 pandemic, observations were not possible. As just described, it is possible to start with measuring the step count of employees. During this step, the researcher can observe employees movements patterns and reasons for movement including the routes. Based on the results of the observations and the step count, it is possible to ask a select group of employees to log their movement patterns and reasons for movement. Instead of or complementary, in-depth observations can take place of a particular group of employees based on the step count and/or initial observations. It is even possible to skip the logbook at all because of its subjectivity. However, it can produce the steps per reason for movement and destination in combination with the activity tracker. Therefore, the observant can log the movement patterns and reasons for movement of (some) employees at the office. This makes it easier to participate in the study and the quality of and the consistency between the logbooks increases. Other purposes of observations (e.g. site audits) are (1) validation of the (a) logbooks or its alternative: an objective and more automated method, (b) spatial graph, (c) survey, and the (d) focus groups, and (2) collection of additional qualitative data: spatial, social and personal factors that hinder and facilitate physical activity.

Another activity tracker is needed to measure the physical activity during commuting and to avoid missing activity data. Hopefully, as discussed earlier, an activity tracker can be found that can track the routes of employees within the work environment to make the method less time-consuming and more

objective. Be aware that the physical activity of the studied employees in this research cannot be compared with the physical activity of employees measured by a new activity tracker.

The survey was extensive and complicated, because of asking for the situation of different periods as a response to the COVID-19 pandemic. In further research, this can be excluded. Only the context of the current period has to be asked in the survey. Besides, self-reported physical activity is not necessary to ask that extensively anymore, because in further research is recommended to measure physical activity objectively by an activity tracker, also at the office which is possible after the COVID-19 pandemic.

The most important takeaway is to determine what you need to know based on preliminary research and what method is needed for this. Decide who (organisation, office building and/or (sub)group of employees) and what location (office building and/or home work environment) needs to be studied (in-depth). See table 4.2 for an overview of the main limitations and related recommendations.

Recommendations / Limitations	A more automated and valid method (e.g. sensors and/or activity tracker that tracks the route)	Measure only a select group of employees and/or work environment	Conduct observations (e.g. site audits) for (additional) information and validation of existing information	(Another) activity tracker	Not asking for the situation of different periods in the survey	Determine what you need to know and what method is needed for this
Missing physical activity data & measured steps in the car				X		
Differences and non-response in self-reported physical activity				X	X	
Time-consuming for both the researcher and the participant (drop-outs)	X	X	X	X	X	X
Unable to connect some of the logbooks with the activity data	X					
Representation of reality, especially concerning the average working day	X		X			
Unknown routes	X		X			
Incomplete floor plans & difficulties to guess the activities of the zones			X			
Complicated and long survey					X	
Not all quantitative results could be discussed in the focus group			X			

Table 4.2 Main limitations and related recommendations (own table).

Based on these recommendations, an improved version of the initially developed method is presented which can be used in further research. In the previous paragraph, also alternative options are mentioned which can be applied. As sensors and an activity tracker that tracks the route are depending on the availability, this is excluded in the improved version described below.

1. Spatial Graph

First, determine which types of offices and organisations need to be studied based on previous research. This could be a large number of offices and organisations as the development of a spatial graph requires solely a floor plan and does not consume a lot of time. In this way, the difference in the arrangement of spaces between all types of offices become evident. Based on the developed spatial graphs and resulting objectively measured arrangement of spaces variables, offices and related organisations need to be selected for studying employees physical activity within the work environment(s). For instance, offices where spaces are arranged differently. The final part of this step is conducting site audits to verify the spatial graphs of the selected offices.

2. Survey

Secondly, a survey is conducted to identify factors that support and inhibit walking and stair climbing within the work environment(s). All employees working in the selected offices and related organisations are asked to complete the survey. As mentioned earlier, this is a simplified version of the survey conducted in this study. Only the context of the measurement period has to be studied and the self-reported physical activity in the office can be excluded. Moreover, based on previous research only some or additional variables can be studied by the survey. For instance, studying only physical activity in the office building and not in the home work environment. The survey still needs to include questions related to selection criteria and the informed consent form.

3. Activity tracker

Thirdly, (a selection of) the employees working in the selected offices and related organisations are asked to wear an activity tracker for five consecutive days (Monday to Friday) during working hours at the office and/or the home work environment and possibly during commuting to measure their step count objectively. In this way, the difference in step count between all types of employees become evident.

4. Activity tracker, observations (and logbook)

Fourth, based on the average step count a day of the employees during working hours derived from the activity tracker, employees are selected to study in-depth by conducting observations and/or logging movement patterns and reasons for movement including stair use. During this step, the selected employees are asked to wear the activity tracker again for five consecutive days (Monday to Friday).

5. Focus groups

Finally, focus groups are conducted to understand the results of previous steps and to identify spatial, social and personal barriers and facilitators for walking and stair climbing within the work environment(s). Also, the participants of the focus groups are selected based on the results of previous research steps.

Further research

In further research, more data need to be gathered by using preferably the improved version of the initially developed method as described in the previous paragraph to expand the knowledge about physical activity in the work environment.

In this study, only three offices from two organisations are studied with varying between 4 and 20 participants per case. Due to the limited cases and participants, the findings are not generalisable. By studying more cases, a benchmark is created which allows understanding the numbers better. Also because of the limited participants and missing data (e.g. stairs climbed within the office in Utrecht and Groningen), the influence of the centrality of a staircase on stair use could not be measured. This also holds for a lot of other variables, such as the influence of movement disability and the difference in movement patterns and reasons for movement between the three offices.

Specifically, more diverse types of (1) offices in terms of the arrangement of spaces and (2) organisations need to be studied. As explained in chapter 4.2, in all the studied three offices the distance between office destinations is presumably too short to influence the number of trips and workplace choice. Besides, different groups of employees perform different activities and have different cultures. The workplace choice and reasons for movement can therefore differ. This can lead to both less and more exercise within the same type of office. Also, a larger office does not always lead to more physical activity. When a distance between the workplace and the office destination is (too) large, this can negatively affect the number of trips to this destination and accordingly the physical activity. Furthermore, in further research, the relation between a hybrid work environment and physical activity needs to be studied because likely the activities within the work environments will change and accordingly the physical activity.

The extensive information produced by this method can serve multiple purposes and related analysis: within-case and cross-case analysis. It is possible to study the difference in physical activity between (1) the office and home work environment in general, (2) offices and organisations, (3) employees within an office or organisation. But it is also possible to study (4) the physical activity of a particular group within or across offices or organisations. For instance employees with a movement disability, a particular age group or employees with low activity levels. So, physical activity can be studied from abstract to in-depth level. All this can be studied in further research to expand the knowledge about physical activity in the work environment.

Practical recommendations

The combination of the spatial and social environment determine the amount of incidental physical activity. It is thus important to attune the spatial and social environment to stimulate physical activity in the work environments.

In offices where the maximum distance between office locations is relatively small, it is important to (1) maximise the distance between workplaces and key office destinations especially the ones that are used most, (2) place especially groups of workplaces further from key office destinations, (3) place workplaces for performing undisturbed work further from the group of workplaces in the periphery with a low degree, and (4) make the least central workplaces most attractive. This means that the center of the office should not be a busy but rather a quiet location. For example, an atrium in the middle of the office – which is also climate-friendly. In the home work environment, it is harder to maximise the distances.

A more attractive workplace has, for instance, a view to outside or colleagues, (day)light, fresh air and suitable furniture (e.g. adjustable and comfortable chair, sit-stand desk and screen). Also, the least centrally located meeting rooms need to be more attractive than others. It should be suitable for the most occurring type of meeting (e.g. right number of chairs, size of the table and room, presence of a screen).

Do not only focus on the maximisation of the horizontal distance but also on the vertical distance to increase stair use in relatively small offices. However, do not make the vertical distance to outside too

large, as this lowers the chance for a walk outside. Besides, ensure an office location with a pedestrian-friendly environment outside.

Before the COVID-19 pandemic, most employees moved from their workplace to key office destinations in the office. In the future, in a hybrid work environment, it could be the other way around. Employees move from the meeting room to other key office destinations and workplaces. As a response, the distance between meeting rooms and other key office destinations and workplaces should be maximised.

It is important to avoid multifunctional workplaces in both the office and home work environment. In this way, you have to move to perform another activity. Accordingly, long moments of performing one activity should be avoided. For instance, spread your meetings over the day and week. In a hybrid work environment, as just described, it is likely that employees mainly or even solely perform meetings at the office and therefore do not have to change from workplace. In case a lot of meetings take place during the day, reserve some time in between for short moments of movement (e.g. getting a drink) in both work environments. Besides, spread the amount of work over the week, to avoid too busy days where breaks are almost impossible.

At home, most employees have only one and multifunctional workplace and accordingly do not change from workplace. This is hard to change, but it is not impossible to perform certain activities at other locations within or around the home. Some locations can be made suitable for certain activities. For instance, changing the background and avoid the presence of other people to perform online meetings. Also, employees can walk to the hall or the environment outside for a call. Moreover, during this activity, it is possible to walk in some cases (e.g. internal meetings). If this is possible, use this opportunity. Besides, it helps to know the time of the walking routes so that you are finished walking at the end of the meeting. Next, a sit-stand stand desk would be helpful if walking meetings are not possible. Also, individual work can be done (shortly) standing which is also a type of incidental physical activity. Of course, this is not restricted to the home work environment, this can also be applied in the office.

This also holds for the lunch walks, which are not restricted by the home work environment. Lunch walks with colleagues can be held to be physically active and socialise at the same time. However, employees should block this moment to be able to walk at the same time. This also holds for other types of movements. Especially at home, it's harder to be incidentally physical active as you are not influenced and disrupted by colleagues. Therefore, plan a lunch break for a short walk to and in the kitchen or even a lunch walk outside. Employees have lunch at the office, so why not at home. This also holds for the short moments of movement in between work. You have these at the office (e.g. chatting next to the coffee point), so why not at home. Therefore, put an alarm to regular move shortly in between work and use these short moments to clear your head for a moment. It’s not a waste of time, it can make you more productive. Also, facilities can help for short moments of movement: table tennis and football tables. It is important to combine physical activity with relaxation (e.g clear your head and socialise).

Further research with preferably the improved version of the initially developed method should show whether the findings of this study also apply to other types of organisations and office environments.

References

Colenberg, S., Jylhä, T., & Arkesteijn, M. (2020). The relationship between interior office space and employee health and well-being–a literature review. *Building Research and Information, 0(0)*, 1–15. https://doi.org/10.1080/09613218.2019.1710098

Creagh, R., McGann, S., Tye, M., Jancey, J., & Babb, C. (2017). Green Star is not a physical activity star. *Facilities, 35(1–2)*, 81–98. https://doi.org/10.1108/F-12-2015-0092

Duncan, M. J., Short, C., Rashid, M., Cutumisu, N., Vandelanotte, C., & Plotnikoff, R. C. (2015). Identifying correlates of breaks in occupational sitting: A cross-sectional study. *Building Research and Information, 43(5)*, 646–658. https://doi.org/10.1080/09613218.2015.1045712

Engelen, L., Chau, J., Bohn-Goldbaum, E., Young, S., Hespe, D., & Bauman, A. (2017). Is Active Design changing the workplace? - A natural pre-post experiment looking at health behaviour and workplace perceptions. *Work, 56(2)*, 229–237. https://doi.org/10.3233/WOR-172483

Engelen, L., Dhillon, H. M., Chau, J. Y., Hespe, D., & Bauman, A. E. (2016). Do active design buildings change health behaviour and workplace perceptions? *Occupational Medicine, 66(5)*, 408–411. https://doi.org/10.1093/occmed/kqv213

Fisher, A., Ucci, M., Smith, L., Sawyer, A., Spinney, R., Konstantatou, M., & Marmot, A. (2018). Associations between the objectively measured office environment and workplace step count and sitting time: Cross-sectional analyses from the active buildings study. *International Journal of Environmental Research and Public Health, 15(6)*. https://doi.org/10.3390/ijerph15061135

Foley, B., Engelen, L., Gale, J., Bauman, A., & MacKey, M. (2016). Sedentary Behavior and Musculoskeletal Discomfort Are Reduced When Office Workers Trial an Activity-Based Work Environment. Journal of *Occupational and Environmental Medicine, 58(9)*, 924–931. https://doi.org/10.1097/JOM.0000000000000828

Gezondheidsraad (2017). *Beweegrichtlijnen 2017*. Retrieved from https://www.gezondheidsraad.nl/documenten/adviezen/2017/08/22/beweegrichtlijnen-2017

Hua, Y., & Yang, E. (2014). Building spatial layout that supports healthier behavior of office workers: A new performance mandate for sustainable buildings. *Work, 49(3)*, 373–380. https://doi.org/10.3233/WOR-141872

Jancey, J. M., McGann, S., Creagh, R., Blackford, K. D., Howat, P., & Tye, M. (2016). Workplace building design and office-based workers' activity: A study of a natural experiment. *Australian and New Zealand Journal of Public Health, 40(1)*, 78–82. https://doi.org/10.1111/1753-6405.12464

Koutamanis, A. (2019). *Building Information – Representation and Management: Fundamentals and Principles*. TU Delft OPEN. https://doi.org/10.5074/t.2019.003

Mcgann, S., Creagh, R., Tye, M., Jancey, J., & Blackford, K. (2014). Stationary in the office: Emerging themes for active buildings. *Architectural Science Review, 57(4)*, 260–270. https://doi.org/10.1080/00038628.2014.958127

Queensland Government (2008). *What is Incidental Activity?* Retrieved from https://www.health.qld.gov.au/__data/assets/pdf_file/0029/367553/pa_incidental.pdf

Sawyer, A., Smith, L., Ucci, M., Jones, R., Marmot, A., & Fisher, A. (2017). Perceived office environments and occupational physical activity in office-based workers. Occupational *Medicine, 67(4)*, 260–267. https://doi.org/10.1093/occmed/kqx022

U.S. Department of Health and Human Services (2018). *Physical Activity Guidelines for Americans, 2nd edition*. Washington, DC: U.S. Department of Health and Human Services. https://www.cdc.gov/physicalactivity/basics/adults/index.htm

WHO (2021). *#HealthyAtHome – Physical activity*. Retrieved April 2, 2021, from https://www.who.int/news-room/campaigns/connecting-the-world-to-combat-coronavirus/healthyathome/healthyathome---physical-activity

World Health Organization (2010). *Global recommendations on physical activity for health*. Geneva: World Health Organization. https://www.who.int/publications/i/item/9789241599979

World Health Organization (2018). *Global action plan on physical activity 2018-2030: more active people for a healthier world*. Geneva: World Health Organization. https://www.who.int/health-topics/physical-activity#tab=tab_1

World Health Organisation (2020). *WHO Guidelines on physical activity and sedentary behaviour for children and adolescents, adults and older adults: Draft 26 March 2020 for consultation only*. Retrieved from https://www.who.int/news-room/articles-detail/public-consultation-on-the-draft-who-guidelines-on-physical-activity-and-sedentary-behaviour-for-children-and-adolescents-adults-and-older-adults-2020

Appendix A – Systematic literature review

1. Researched arrangement of spaces variables

Paper	Arrangement of spaces variables	Data collection	Office environment
Fisher et al. (2018)	– Distance from each workstation to key office destinations (kitchens/coffee points, shared printers/copiers, meeting rooms, lifts, stairs, and WCs) – Distance from participant's workstation to all other workstations – Visibility of co-workers – Workstation 'closeness'	– Office floor plans were used for spatial graphs to calculate all the four variables	Office floors of 10 organisations
Engelen et al. (2017)	– Floor space per person – Distances between the workstations and amenities (kitchen and bathroom) – Centrally located stair case – Amount of alternative routes – Amount of other workstations located within a short distance	– Trundle wheel or floor plans: floor space per person and distances between the workstations and amenities – Online questionnaire: amount of alternative routes and amount of other workstations located within a short distance – Observational measurement: centrally located stair case "accessibility/visibility of … stairs" (p. 232)	New Active Design building (vs. fourteen old buildings)
Jancey et al. (2016)	– Centrality of staircase – Centrality of facilities area (kitchen, toilet and printers) – Floor space per person – Distance between the workstation and facilities (Kitchen, toilet and printers) – Amount of levels	– Not explained.	New purpose-built 'active permissive' office building (vs. 30-year-old office building)
Engelen et al. (2016)	– Floor space per person – Distances between the workstations and amenities kitchen and bathroom	– Trundle wheel to measure distances – Data collection on floor space per person is not explained.	New Active design office building (vs. four old buildings)
Hua & Yang (2014)	– Proximity from individual workstations to various shared service and amenity spaces in the workplace (i.e. staircase, elevator, conference room, kitchen, copy area, reception, printer and restroom)	– Floor plans: proximity variables	Three-story office building (four departments with different layouts)

2. Researched physical activity variables

Paper	Physical activity variables	Data collection
Fisher et al. (2018)	– Steps per working hour – Proportion of sitting time per working hour	– ActivPAL accelerometer (three consecutive workdays)
Engelen et al. (2017)	– Percentage of walking per work day – Percentage of sitting per work day – Percentage of standing per work day – Percentage of heavy labour or physically demanding tasks per work day – Flights of stairs per day – Amount of days with 30 minutes of moderate to vigorous physical activity	– Online questionnaire
Jancey et al. (2016)	– Percentage of daily sitting time – Percentage of daily standing time – Percentage of daily moderate physical activity – Mean minutes of sitting time – Mean minutes of standing time – Mean minutes of moderate and vigorous physical activity – Steps per day – Number of times stair use per day – Levels travelled per day – Length of sedentary bouts	– ActiGraph GT3X+ accelerometers (five days: Monday to Friday) – Online survey: self-reported stair use
Engelen et al. (2016)	– Percentage of walking per day – Percentage of sitting per day – Percentage of standing per day – Percentage of heavy labour at work per day – Flights of stairs per day – Amount of days with 30 minutes of moderate to vigorous physical activity	– Online questionnaire
Hua & Yang (2014)	– Sedentariness (%) – Non-sedentariness (%) – Step count (three days) – Average longest duration of sedentariness (min.) – Longest duration of sedentariness (min.)	– ActiGraph GT3X+ accelerometers

3. Physical activity outcomes in terms of walking and stair climbing

Paper	Arrangement of spaces difference(s)	Physical activity outcome (s)
Fisher et al. (2018)	Increased distance from each workstation to key office destinations (kitchens/coffee points, shared printers/copiers, meeting rooms, lifts, stairs, and WCs) – All destinations (metres and edges) Mean = 69.38 (14.04) – Nearest destination (metres and edges) Mean = 39.38 (14.04)	– Decreased steps/hour (all destinations) – Decreased: -5 steps/hour/meter (nearest destination) – Mean step count/hour = 444 – Mean step count/workday = 3412
	– Distance from participant's workstation to all other workstations (metres and edges) Mean = 32.48 (12.50)	– No effect on steps per working hour
	Increased visibility of co-workers – When standing / Mean = 45.96 – When sitting / Mean = 6.34	– Decreased: -2 steps per hour per additional visible workstation when standing – No effect when sitting on steps per working hour
	– Workstation 'closeness' (turns and angular deviation) Mean = 2.50 (233.76)	– No effect on steps per working hour

Engelen et al. (2017)	– Decreased floor space per person: 8-16 to 7-9 (m2)
	– Increased distances between the workstations and amenities (kitchen and bathroom)
	  – Kitchen shortest: 1-12 to 25 (m)
	  – Kitchen longest: 23-43 to 132 (m)
	  – Decreased! Bathroom shortest: 9-28 to 5 (m)
	  – Bathroom longest: 24-30 to 66 (m)
	– Centrally located stair case (no objective measure)
	– Increased amount of alternative routes (no objective measure: from 46% to 72% agreed)
	– Increased amount of other workstations located within a short distance (no objective measure: from 80% to 92%)
		– No effect on percentage of walking per work day
		– No effect on flights of stairs per day

Jancey et al. (2016)	– Centrality of staircase (no objective measure) – Centrality of facilities area (kitchen, toilet and printers) (no objective measure) – Increased floor space per person: from 1219 to 1649 m2 – Increased distance between the workstation and facilities (Kitchen, toilet and printers) (no objective measure) – Decreased amount of levels: from two to one	– Increased: + 1232 (48%) steps per day – No effect on the number of times stair use per day

Engelen et al. (2016)	– Decreased floor space per person: 8-16 to 9.6 (m2)
	– Increased distances between the workstations and amenities kitchen and bathroom
	  – Kitchen longest/shortest: 24-34 to 42 / 1-12 to 8 (m)
	  – Bathroom longest/shortest: 24-30 to 89 / 9-28 to 40 (m)
		– No effect on percentage of walking per work day
		– No effect on flights of stairs per day

Hua & Yang (2014)	– Increased distance from individual workstations to various shared service and amenity spaces in the workplace – Mean distances (i.e. staircase, elevator, conference room, kitchen, copy area, reception, printer and restroom): 98.5, 118.6, 77.6, 73.0, 64.8, 99.5, 42.0 and 122.5 (m)	– Decreased step count (three days) by increasing distance from workstations to conference rooms, reception desks, copy areas, kitchens, and elevators. – No effect on step count by increasing distance from workstations to printer, restroom and stairs.

4. Measured covariates

Paper	Covariates
Fisher et al. (2018)	– Height and Weight to calculate BMI – Sociodemographic: age, sex, ethnicity, job role, income and organisation – Gross spatial metrics of organisations: gross internal area, net internal area, net useable area, number of workstations, gross internal density, net internal density and net useable density – Perceived management discouragement of breaks
Engelen et al. (2017)	
Jancey et al. (2016)	– Gender, education, age, weight, height and BMI
Engelen et al. (2016)	
Hua & Yang (2014)	– Age, education, job position, number of months working in the building, number of months working in the current workstation, number of days achieving 30 minutes of moderate physical activity per week (self-evaluated physical activity)

5. Research methods

Paper	Research method	Data collection	Participants	Data analysis
Fisher et al. (2018)	Cross-sectional	– Office floor plans were used for spatial graphs to calculate all the four variables – ActivPAL accelerometer (three consecutive workdays) – Anthropometric measures – Survey: sociodemographic – Unknown: Gross spatial…. And perceived management discouragement of breaks	131 from 10 organisations	Linear regression models, p-value of <0.05
Engelen et al. (2017)	Natural pre-post study (one month before moving and five months after)	– Trundle wheel or floor plans: floor space per person and distances between the workstations and amenities – Online questionnaire: the amount of alternative routes and amount of other workstations located within a short distance – Observational measurement: centrally located stair case "accessibility/visibility of … stairs" (p. 232) Online questionnaire – Focus group	118 participants of the 252 relocated invited employees (response rate 47%)	Mixed model linear regression and ordinal regression, p-value of <0.05
Jancey et al. (2016)	Natural pre-post-study (one month before moving and four months after moving)	– Data collection on the arrangement of spaces variables is not explained. – ActiGraph GT3X+ accelerometers (five days: Monday to Friday) – Online survey: self-reported stair use	42 participants of the 80 employees	Paired sample t tests, p-value of <0.05
Engelen et al. (2016)	Natural pre-post study (two months before moving and two months after)	– Trundle wheel to measure distances – Data collection on floor space per person is not explained. – Online questionnaire	34 participants (21 provided complete data)	Paired t-tests, p<0.05, Bonferroni correction
Hua & Yang (2014)	Cross-sectional	– Floor plans: proximity variables – ActiGraph GT3X+ accelerometers (three consecutive days)	26 participants from four departments	p<0.05

6. Explanatory research on physical activity outcomes

Paper	Topic	Method	Data collection
Creagh et al. (2017)	New purpose-built 'active permissive' office building (vs. 30-year-old office building)	Natural pre-post study (one month before moving and five months after)	Building on the study of Jancey et al. (2016): – Data collection on the arrangement of spaces variables is not explained. – ActiGraph GT3X+ accelerometers (five days: Monday to Friday) – Online survey: self-reported stair use – Covariates (to be added) Mixed-method (Creagh et al., 2017): – *"Observations of participants' movement patterns and use of space (10 min periods observed at four points throughout the workday on two mid-week days)"* (p. 85) – *"Photo survey of the building"* (p. 85) – *"Focus group about barriers and facilitators to physical activity in the office"* (p. 85)
Sawyer et al. (2017)	"*Participants were adults in office-based occupations who participated in the Active Building study, a cross-sectional study of the relationship between the spatial configuration of workplaces and occupational physical activity*" (p. 261)	Cross-sectional	– Movement at Work Survey to measure the perceptions of the office environment – ActivPAL accelerometer (>= 3 workdays) – Self-report age, sex, smoking, occupation and organization – Trained researches: weight, height and calculate BMI
Engelen et al. (2017)	Active Design building (vs. fourteen other workplaces) & physical activity	Natural pre-post study	– Trundle wheel or floor plans: floor space per person and distances between the workstations and amenities – Online questionnaire: amount of alternative routes and amount of other workstations located within a short distance – Observational measurement: centrally located stair case "*accessibility/visibility of … stairs*" (p. 232) – Covariates (to be added) – Focus groups (one hour; after the post-move survey)
Mcgann et al. (2014)	Active Building Design	-	– Measured drawings – Photographic survey: physical environment & lived space/behaviour – Observation: mapping movement paths and rituals – Anecdotal evidence: views of the target group

Appendix B – Method

1. Survey scheme

Block	Question		Answer	Skip/Display logic	Question Type	Validation	Page break
Doelgroep	1	Deze enquête dient alleen ingevuld te worden door werknemers van Aestate/ontrafelexperts die kantoorwerkzaamheden (bureauwerk) verrichten of in 2020 hebben verricht op het kantoor in Odijk. Bent u een werknemer van Aestate/ontrafelexperts en verricht of verrichte u in 2020 kantoorwerkzaamheden (bureauwerk) op het kantoor in Odijk?	- Ja - Nee	Condition: Nee is Selected. Skip To: End of Survey	Multiple Choice: single Answer	Force Response	Page break
Toestemming	-	De volgende vragen gaan over uw toestemming om deel te nemen aan het onderzoek. Door vraag 2 t/m 10 met te beantwoorden, uw naam in te vullen en uw handtekening te zetten, geeft u uw toestemming om deel te nemen aan het onderzoek. Vult u één of meerdere van deze vragen niet in of ontbreekt uw naam of handtekening, dan doet u niet mee aan het onderzoek. In dit geval wordt de enquête beëindigd. Mocht u van gedachten veranderen, dan kunt u de enquête opnieuw openen en invullen via de link die u ontvangen heeft per mail. Uw e-mailadres dient ingevuld te worden om u per mail op de hoogte te stellen of u in aanmerking komt voor de vervolg stappen van dit onderzoek. De studie informatie d.d. 12102020 kunt u onderaan deze tekst downloaden. Mocht u na het lezen van de studie informatie d.d. 12102020 nog vragen hebben over (deelname aan) het onderzoek of deze enquête, neem dan contact op met de onderzoeker: Jetske de Graaf, [redacted] Bij voorbaat dank voor uw deelname. [Link naar de studie informatie d.d. 12102020]	-	-	Text / Graphic: File; Link Initiates Download, Show Question Text	-	Page break
	2	Ik heb de studie informatie d.d. 12102020 gelezen en begrepen, of het is voorgelezen aan mij. Ik heb vragen kunnen stellen over de studie	- Ja - Nee	Condition: Nee Is Selected. Skip To: Studie informatie d.d. 12102020 ku…	Multiple Choice: Single Answer	Force Response	Page break

		en mijn vragen zijn naar tevredenheid beantwoord.					
	3	Ik geef vrijwillig toestemming om deel te nemen aan dit onderzoek en begrijp dat ik vragen kan weigeren te beantwoorden en dat ik me op elk moment uit het onderzoek kan terugtrekken zonder dat ik een reden hoef op te geven.	- Ja - Nee	Condition: Nee Is Selected. Skip To: Studie informatie d.d. 12102020 ku…	Multiple Choice: Single Answer	Force Response	Page break
	Etc.						
Persoonlijke kenmerken	-	U hebt zojuist uw toestemming gegeven om deel te nemen aan dit onderzoek. Hartelijk dank. Nu kunt u direct doorgaan met het beantwoorden van de rest van de enquête vragen. Vanaf dit moment kunt u vragen weigeren te beantwoorden door naar de volgende vraag te gaan. Aan het einde van de enquête kunt u uw opmerkingen en vragen noteren over het onderzoek of de enquête. Hier kunt u ook bijzonderheden noteren die van invloed kunnen zijn op het onderzoek. In deze enquête wordt er naar verschillende situaties gevraagd: (1) De huidige situatie (vanaf oktober 2020) wanneer u niet structureel naar het kantoor in Odijk gaat. (2) De periode juni t/m september 2020, wanneer u structureel een aantal dagen per week naar het kantoor in Odijk mocht. (3) De periode vóór corona (januari en februari 2020). De eerst volgende vragen gaan over uw persoonlijke kenmerken. Volgens onderzoek is namelijk gebleken dat geslacht, leeftijd, opleiding en BMI (Body Mass Index) mogelijk een relatie hebben met de hoeveelheid fysieke activiteit. Om uw BMI te bereken wordt er om uw gewicht en lengte gevraagd.	-	-	Text / Graphic: Text	-	Page break
	12	Wat is uw geslacht?	- Man - Vrouw - Anders	-	Multiple Choice: Single Answer	Request Response	-
	13	Wat is uw leeftijd?	- 17 of jonger - 18 – 20 - 21 – 30 - 31 – 40 - 41 – 50 - 51 – 60 - 61 – 64 - 65 of ouder	-	Multiple Choice: Single Answer	Request Response	Page break
	14	Wat is de hoogste opleiding die u heeft afgerond?	- Lager onderwijs - Middelbaar Onderwijs - MBO - HBO - WO - Anders, namelijk: [text entry]	-	Multiple Choice: Single Answer	Request Response	-
	15	Was dit ook uw hoogste afgeronde opleiding in januari 2020?	- Ja - Nee, ik heb mijn hoogste opleiding afgerond in 2020, in de maand: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break

	15b	Wat was vóór deze maand in 2020 de hoogste opleiding die u heeft afgerond?	- Lager onderwijs - Middelbaar Onderwijs - MBO - HBO - WO - Anders, namelijk: [Text Entry]	Display This Question: If Was dit ook uw hoogste afgeronde opleiding in januari 2020? Nee, ik heb mijn hoogste opleiding afgerond in 2020, in de maand: Is Selected	Multiple Choice: Single Answer	Request Response	Page break
	16	Wat is uw lengte in centimeters?	[Text Entry]	-	Text Entry: Single Line	Request Response; Content Validation: Number, Minimum: 100, Maximum: 999, Max Decimals: 0	-
	17	Wat is uw gewicht in kilogram?	[Text Entry]	-	Text Entry: Single Line	Request Response; Content Validation: Number, Minimum: 10, Maximum: 999, Max Decimals: 0	-
	18	Was dit ook uw gewicht in januari 2020?	- Ja - Nee, mijn gewicht in januari 2020 was: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
Woonsituatie	-	De volgende vragen gaan over uw woonsituatie aangezien dit mogelijk uw fysieke activiteit beïnvloedt.	-	-	Text / Graphic: Text	-	-
	19	Hoeveel maanden woont u op uw huidige adres?	- Minder dan 1 maand - 1 maand - 2 maanden - 3 maanden - 4 maanden - 5 maanden - 6 maanden - 7 maanden - 8 maanden - 9 maanden - 10 maanden - 11 tot 12 maanden - Meer dan 12 maanden	-	Multiple Choice: Single Answer	Request Response	-
	20	In welk type woning woont u?	- Vrijstaande woning - 2-onder-1-kapwoning - Tussenwoning/ hoekwoning - Appartement - Anders, namelijk: [Text entry]	-	Multiple Choice: Single Answer	Request Response	-
	21	Wat is het totale woonoppervlakte van uw woning in vierkante meters?	[Text Entry]	-	Text Entry: Single Line	Request Response; Content Validation: Number, Minimum: 0, Max Decimals: 0	-
	22	In welk type woonmilieu woont u?	- Centrum stedelijk - Stedelijk buiten centrum - Groen stedelijk - Centrum dorps - Landelijk wonen - Anders, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
	19b	Het lijkt erop dat u eerder in 2020 op een ander adres heeft gewoond. Hoeveel maanden heeft u op dit adres gewoond?	- Ik heb in 2020 niet op een ander adres gewoond. - Minder dan 1 maand - 1 maand - 2 maanden - 3 maanden - 4 maanden - 5 maanden - 6 maanden - 7 – 12 maanden - Meer dan 12 maanden	Display This Question: If Hoeveel maanden woont u op uw huidige adres? Minder dan 1 maand Is Selected Or 1 maanden is Selected Or 2 maanden is Selected Or 3 maanden is Selected Or 4 maanden is Selected Or 5 maanden is Selected Or 6 maanden is Selected Or 7 maanden is Selected Or 8 maanden is Selected Or 9 maanden is Selected Or 10 maanden is Selected	Multiple Choice: Single Answer	Request Response	Page break
	20b	In welk type woning woonde u?	- Vrijstaande woning - 2-onder-1-kapwoning - Tussenwoning/ hoekwoning	Display This Question If Het lijkt erop dat u eerder in 2020 op een ander adres heeft gewoond.	Multiple Choice:	Request Response	-

			- Appartement - Anders, namelijk: [Text entry]	Hoeveel maanden heeft u op dit adres gewoond? Ik heb in 2020 niet op een ander adres gewoond. Is Displayed.	Single Answer		
	21b	Wat was het totale woonoppervlakte van uw eerdere woning in vierkantemeters?	[Text Entry]	Display This Question If Het lijkt erop dat u eerder in 2020 op een ander adres heeft gewoond. Hoeveel maanden heeft u op dit adres gewoond? Ik heb in 2020 niet op een ander adres gewoond. Is Displayed.	Text Entry: Single Line	Request Response; Content Validation: Number, Minimum: 0, Max Decimals: 0	-
	22b	In welk type woonmilieu woonde u?	- Centrum stedelijk - Stedelijk buiten centrum - Groen stedelijk - Centrum dorps - Landelijk wonen - Anders, namelijk: [Text Entry]	Display This Question If Het lijkt erop dat u eerder in 2020 op een ander adres heeft gewoond. Hoeveel maanden heeft u op dit adres gewoond? Ik heb in 2020 niet op een ander adres gewoond. Is Displayed.	Multiple Choice: Single Answer	Request Response	Page break
	23	Uit hoeveel personen bestaat uw huishouden?	- 1 persoon - 2 personen - 3 personen - 4 personen - 5 personen - Meer dan 5 personen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	-
	24	Is het aantal personen in uw huishouden gelijk gebleven in 2020?	- Ja - Nee, het aantal personen in mijn huishouden is veranderd in 2020, namelijk in de maand: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
	24b	Wat was vóór deze maand in 2020 het aantal personen in uw huishouden?	- 1 persoon - 2 personen - 3 personen - 4 personen - 5 personen - Meer dan 5 personen, namelijk: [Text Entry]	Display This Question If Is het aantal personen in uw huishouden gelijk gebleven in 2020? Nee, het aantal personen in mijn huishouden is veranderd in 2020, namelijk in de maand: Is Selected	Multiple Choice: Single Answer	Request Response	Page break
Werksituatie	-	De volgende vragen gaan over uw werksituatie aangezien dit mogelijk uw fysieke activiteit beïnvloedt.	-	-	Text / Graphic: Text	-	-
	25	Hoeveel uren spendeert u aan de volgende werkzaamheden in een doorsnee werkweek voor Aestate/ontrafelexperts? Het totaal dient uit te komen op het aantal uren dat u op dit moment (vanaf oktober 2020) per week werkt voor Aestate/ontrafelexperts. - Algemeen bureauwerk (routinematig) - Ongestoord bureauwerk waarbij u niet gestoord wilt worden) - Interactief bureauwerk (waarbij interactie/samenwerking met een college gewenst of noodzakelijk is) - Gepland overleg (intern en extern; afgesproken overleg met 1 of meerdere collega's) - Ongepland overleg (intern en extern; ad hoc overleg) - Telefoneren (telefoongesprekken van verschillende aard) - Archiveren en documentverzorging (verwerken van documenten (bijvoorbeeld in mappen doen) en ingekomen post (voor de gemiddelde medewerker)	[Text Entry]	-	Matrix Table: Constant Sum; Total Box: Scale Point	Number	-

		- Lezen (langer dan een half uur) - Overige alle overige activiteiten die niet passen onder een van de andere genoemde activiteiten)					
	26	In de vorige vraag heeft u aangegeven hoeveel uren u op dit moment (vanaf oktober 2020) per week werkt voor Aestate/ontrafelexperts. Is dit gelijk gebleven in 2020? (Exclusief vakantiedagen)	- Ja, ik heb in heel 2020 dit aantal uren per week gewerkt voor Aestate/ontrafelexperts. - Ja, sinds ik werk bij Aestate/ontrafelexperts is het aantal uren dat ik per week werk gelijk gebleven, echter ben ik pas in dienst getreden bij Aestate/ontrafelexperts in de loop van dit jaar (2020) in de maand: [Text Entry] - Nee, het aantal uren dat ik per week werk voor Aestate/ontrafelexperts is veranderd in 2020, namelijk in de maand: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
	26b	Wat was vóór deze maand in 2020 het aantal uren dat u per week werkte voor Aestate/ontrafelexperts?	[Text Entry]	Display This Question If In de vorige vraag heeft u aangegeven hoeveel uren u op dit moment (vanaf oktober 2020) per week werkt voor Aestate/ ontrafelexperts… Nee, het aantal uren dat ik per week werk voor Aestate/ Ontrafelexperts is veranderd in 2020, namelijk in de maand: Is Selected	Text Entry: Single Line	Request Response; Content Validation: Number, Minimum: 0, Maximum: 100, Max Decimals: 0	Page break
	27	Heeft u een leidinggevende functie?	- Ja - Nee	-	Multiple Choice: Single Answer	Request Response	-
	28	Geef aan in hoeverre u het met de volgende stellingen eens of oneens bent. - De organisatie geeft genoeg aandacht aan gezondheid en vitaliteit. - De leidinggevenden ondersteunen medewerkers op het gebied van gezondheid en vitaliteit. - Pauze wordt aangemoedigd op het werk door de organisatie.	- Helemaal niet mee eens - Niet mee eens - Niet mee oneens en niet mee eens - Mee eens - Helemaal mee eens	-	Matrix Table: Likert; Single Answer	Request Response	Page break
	29	Uw bekendheid met de kantooromgeving beïnvloedt mogelijk uw fysieke activiteit. In hoeveel maanden heeft u op het kantoor van Aestate/ontrafelexperts in Odijk gewerkt? Ook als u maar enkele dagen in één maand in het kantoor in Odijk heeft gewerkt telt dit als één volledige maand.	- Minder dan 1 maand - 1 maand - 2 maanden - 3 maanden - 4 maanden - 5 maanden - 6 maanden - 7 – 12 maanden - Meer dan 12 maanden	-	Multiple Choice: Single Answer	Request Response	-
	30	Heeft u een vaste werkplek op het kantoor van Aestate/ontrafelexperts in Odijk? Onder werkplek wordt een specifiek bureau bedoeld.	- Ja - Nee	-	Multiple Choice: Single Answer	Request Response	Page break
	30b	Had u eerder in 2020 een vaste werkplek op het kantoor van Aestate/ontrafelexperts in Odijk?	- Ja, ik had een vaste werkplek in 2020 tot de maand: [Text Entry] - Nee	Display This Question If Heeft u een vaste werkplek op het kantoor van Aestate/ ontrafelexperts in Odijk? Onder werkplek… Nee is Selected	Multiple Choice: Single Answer	Request Response	Page break

	30b	Hoeveel maanden werkt u op uw huidige vaste werkplek op het kantoor van Aestate/ontrafelexperts in Odijk?	- Minder dan 1 maand - 1 maand - 2 maanden - 3 maanden - 4 maanden - 5 maanden - 6 maanden - 7 maanden - 8 maanden - 9 maanden - 10 maanden - 11-12 maanden - Meer dan 12 maanden	Display This Question If Heeft u een vaste werkplek op het kantoor van Aestate/ ontrafelexperts in Odijk? Onder werkplek… Ja is Selected	Multiple Choice: Single Answer	Request Response	Page break
	30c	Het lijkt erop dat u eerder in 2020 op een andere vaste werkplek heeft gewerkt op het kantoor van Aestate/ontrafelexperts in Odijk. Hoeveel maanden werkte u op deze vaste werkplek?	- Ik heb in 2020 niet op een andere vaste werkplek gewerkt op het kantoor van Aestate/ontrafelexperts in Odijk. - Minder dan 1 maand - 1 maand - 2 maanden - 3 maanden - 4 maanden - 5 maanden - 6 maanden - 7 – 12 maanden - Meer dan 12 maanden	Display This Question If Hoeveel maanden werkt u op uw huidige vaste werkplek… Minder dan 1 maand Is Selected Or 1 maand is Selected Or 2 maand is Selected Or 3 maand is Selected Or 4 maand is Selected Or 5 maand is Selected Or 6 maand is Selected Or 7 maand is Selected Or 8 maand is Selected Or 9 maand is Selected Or 10 maand is Selected Or Had u eerder in 2020 een vaste werkplek… Ja, ik had een vaste werkplek in 2020 tot de maand: Is Selected	Multiple Choice: Single Answer	Request Response	Page break
	31	Had u verder nog eerder in 2020 een vaste werkplek op het kantoor van Aestate/ontrafelexperts in Odijk?	- Ja - Nee	Display This Question If Het lijkt erop dat u eerder in 2020 op een andere vaste werkplek heeft gewerkt… Ik heb in 2020 niet op een andere vaste werkplek gewerkt… Is Displayed	Multiple Choice: Single Answer	Request Response	Page break
	31b	Hoeveel maanden werkte u op deze vaste werkplek op het kantoor van Aestate/ontrafelexperts in Odijk?	- Minder dan 1 maand - 1 maand - 2 maanden - 3 maanden - 4 maanden - 5 maanden - 6 maanden - 7 – 12 maanden - 11-12 maanden Meer dan 12 maanden	Display This Question If Had u verder nog eerder in 2020 een vaste werkplek op het kantoor van Aestate/ ontrafelexperts in Odijk? Ja Is Selected	Multiple Choice: Single Answer	Request Response	Page break
Huidige situatie (vanaf oktober 2020)	-	Op dit moment (vanaf oktober 2020) mag u vanwege de corona-maatregelen niet meer structureel naar het kantoor in Odijk. De volgende vragen gaan over uw fysieke activiteit in deze periode.	-	-	Text / Graphic: Text	-	Page break
	32	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd zowel op werkdagen als weekenddagen. Neem daarbij dus uw beweging tijdens uw werkuren niet mee. Werkt u bijvoorbeeld van 8:30 tot 17:00 (inclusief pauzes), neem dan alleen uw beweging voor 8.30 en na 17:00 uur mee. Hoeveel dagen in een doorsnee week lukt het u op dit moment (vanaf oktober 2020) om 30 minuten per dag te bewegen in uw vrije tijd?	- 0 dagen - 1 dag - 2 dagen - 3 dagen - 4 dagen - 5 dagen - 6 dagen - 7 dagen	-	Multiple Choice: Single Answer	Request Response	Page break
	33	Hoeveel dagen werkt u op dit moment (vanaf oktober 2020) in een doorsnee	- Minder dan 3 dagen, namelijk: [Text Entry] - 3 dagen - 3,5 dagen	-	Multiple Choice:	Request Response	-

		werkweek in totaal voor Aestate/ontrafelexperts?	- 4 dagen - 4,5 dagen - 5 dagen - Meer dan 5 dagen, namelijk: [Text Entry]		Single Answer		
	34	Hoeveel dagen werkt u op dit moment (vanaf oktober 2020) in een doorsnee werkweek thuis voor Aestate/ontrafelexperts?	- Minder dan 3 dagen, namelijk: [Text Entry] - 3 dagen - 3,5 dagen - 4 dagen - 4,5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	-
	35	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd op uw thuiswerkdagen. Neem daarbij dus uw beweging tijdens uw werkuren niet mee. Werkt u bijvoorbeeld van 8:30 tot 17:00 (inclusief pauzes), neem dan alleen uw beweging voor 8.30 en na 17:00 uur mee. Op hoeveel van uw zojuist genoemde thuiswerkdagen in een doorsnee werkweek lukt het u op dit moment (vanaf oktober 2020) om 30 minuten per dag te bewegen in uw vrije tijd?	- 0 dagen - 0 tot 1 dag - 1 dag - 1 tot 2 dagen - 2 dagen - 2 tot 3 dagen - 3 dagen - 3 tot 4 dagen - 4 dagen - 4 tot 5 dagen - 5 dagen - Meer dan 5 dagen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
	36	Geef aan in hoeverre u het met de volgende stellingen eens of oneens bent. Het gaat nog steeds over uw huidige situatie (vanaf oktober 2020). - Ik beweeg veel in mijn vrije tijd. - Op mijn thuiswerkdagen beweeg ik veel in mijn vrije tijd. - Op mijn thuiswerkdagen beweeg ik veel tijdens mijn werkuren. - Ik ben tevreden met de hoeveelheid die ik beweeg. - Ik heb een aandoening die mijn dagelijkse beweging beperkt. - In de toekomst wil ik meer bewegen tijdens mijn thuiswerkdagen. - In de toekomst wil ik meer bewegen tijdens mijn kantoorwerkdagen in Odijk.	- Helemaal niet mee eens - Niet mee eens - Niet mee oneens en niet mee eens - Mee eens - Helemaal mee eens	-	Matrix Table: Likert; Single Answer	Request Response	Page break
	-	Als u in aanmerking komt voor de vervolg stappen van dit onderzoek wordt uw feitelijke fysieke activiteit tijdens uw werkuren thuis gemeten met een activiteitstracker. Daarom worden er in deze enquête geen vragen gesteld over uw feitelijke fysieke activiteit tijdens uw werkuren thuis.	-	-	Text / Graphic: Text	-	Page Break
	37	Het (regelmatig) veranderen van werkplek kan uw fysieke activiteit beïnvloeden. Hoe vaak verandert u van thuiswerkplek op dit moment (vanaf oktober 2020)? Het begrip thuiswerkplek kunt u breed interpreteren. Het kan bijvoorbeeld een specifiek bureau, (keuken)tafel of zitbank zijn.	- Nooit - Minder dan één keer per week - 1-2 keer per week - 3-4 keer per week - Bij de start van elke dag - Eenmaal tijdens de dag - Meerdere malen tijdens de dag	-	Multiple Choice: Single Answer	Request Response	Page break
Periode juni t/m september 2020	-	In de periode juni t/m september 2020 mocht u van uw organisatie (Aestate/ontrafelexperts), structureel een aantal dagen per week naar het kantoor in Odijk. De volgende vragen gaan over uw fysieke activiteit in deze periode.	-	-	Text / Graphic: Text	-	Page break

		Mocht u niet deze gehele periode (juni t/m september 2020) gewerkt hebben bij Aestate/ontrafelexperts, neem dan een doorsnee (werk)week binnen deze periode wanneer u wel werkte bij Aestate/ontrafelexperts.					
	38	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd zowel op werkdagen als weekenddagen. Neem daarbij dus uw beweging tijdens uw reis- en werkuren niet mee. Vertrok u in de ochtend bijvoorbeeld om 7:30 naar het kantoor in Odijk en kwam u om 18:00 uur thuis, neem dan alleen uw beweging voor 7:30 en na 18:00 mee. Hoeveel dagen in een doorsnee week lukte het u in de periode juni t/m september 2020 gemiddeld om 30 minuten per dag te bewegen in uw vrije tijd?	- 0 dagen - 1 dag - 2 dagen - 3 dagen - 4 dagen - 5 dagen - 6 dagen 7 dagen	-	Multiple Choice: Single Answer	Request Response	Page break
	39	Hoeveel dagen werkte u in de periode juni t/m september 2020 in een doorsnee werkweek in totaal voor Aestate/ontrafelexperts?	- Minder dan 3 dagen, namelijk: [Text Entry] - 3 dagen - 3,5 dagen - 4 dagen - 4,5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
	40	Hoeveel dagen werkte u in de periode juni t/m september 2020 in een doorsnee werkweek thuis voor Aestate/ontrafelexperts?	- 0 dagen - 0,5 dag - 1 dag - 1,5 dag - 2 dagen - 2,5 dag - 3 dagen - 3,5 dagen - 4 dagen - 4,5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	-
	41	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd op uw thuiswerkdagen. Neem daarbij dus uw beweging tijdens uw werkuren niet mee. Werkt u bijvoorbeeld van 8:30 tot 17:00 (inclusief pauzes), neem dan alleen uw beweging voor 8.30 en na 17:00 uur mee. Op hoeveel van uw zojuist genoemde thuiswerkdagen in een doorsnee werkweek lukte het u in de periode juni t/m september 2020 gemiddeld om 30 minuten per dag te bewegen in uw vrije tijd?	- 0 dagen - 0 tot 1 dag - 1 dag - 1 tot 2 dagen - 2 dagen - 2 tot 3 dagen - 3 dagen - 3 tot 4 dagen - 4 dagen - 4 tot 5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
	42	Hoeveel dagen werkte u in de periode juni t/m september 2020 in een doorsnee werkweek op het kantoor van Aestate/ontrafelexperts in Odijk?	- 0 dagen - 0,5 dag - 1 dag - 1,5 dag - 2 dagen - 2,5 dag - 3 dagen - 3,5 dagen - 4 dagen - 4,5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	-

	43	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd op kantoorwerkdagen in Odijk. Neem daarbij dus uw beweging tijdens uw reis- en werkuren niet mee. Vertrok u in de ochtend bijvoorbeeld om 7:30 naar het kantoor in Odijk en kwam u om 18:00 uur thuis, neem dan alleen uw beweging voor 7:30 en na 18:00 mee. Op hoeveel van uw zojuist genoemde kantoorwerkdagen in Odijk in een doorsnee werkweek lukte het u in de periode juni t/m september 2020 gemiddeld om 30 minuten per dag te bewegen in uw vrije tijd?	- 0 dagen - 0 tot 1 dag - 1 dag - 1 tot 2 dagen - 2 dagen - 2 tot 3 dagen - 3 dagen - 3 tot 4 dagen - 4 dagen - 4 tot 5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	-	Multiple Choice: Single Answer	Request Response	Page break
	44	Geef aan in hoeverre u het met de volgende stellingen eens of oneens bent. Het gaat nog steeds over de periode juni t/m september 2020. - Ik bewoog veel in mijn vrije tijd. - Op mijn thuiswerkdagen bewoog ik veel in mijn vrije tijd. - Op mijn thuiswerkdagen bewoog ik veel tijdens mijn werkuren. - Op mijn kantoorwerkdagen in Odijk bewoog ik veel in mijn vrije tijd. - Op mijn kantoorwerkdagen in Odijk bewoog ik veel tijdens mijn werkuren. - Op mijn kantoorwerkdagen in Odijk bewoog ik veel tijdens mijn reisuren van en naar kantoor. - Ik ben tevreden met de hoeveelheid die ik bewoog. - Ik had een aandoening die mijn dagelijkse beweging beperkt.	- Helemaal niet mee eens - Niet mee eens - Niet mee oneens en niet mee eens - Mee eens - Helemaal mee eens	-	Matrix Table: Likert; Single Answer	Request Response	Page break
	45	Hoe vaak veranderde u van thuiswerkplek in de periode juni t/m september 2020? Het begrip thuiswerkplek kunt u breed interpreteren. Het kan bijvoorbeeld een specifiek bureau, (keuken)tafel of zitbank zijn.	- Nooit - Minder dan één keer per week - 1-2 keer per week - 3-4 keer per week - Bij de start van elke dag - Eenmaal tijdens de dag - Meerdere malen tijdens de dag	-	Multiple Choice: Single Answer	Request Response	-
	46	Hoe vaak veranderde u van werkplek op het kantoor in Odijk in de periode juni t/m september 2020? Onder werkplek wordt een specifiek bureau bedoeld.	- Nooit - Minder dan één keer per week - 1-2 keer per week - 3-4 keer per week - Bij de start van elke dag - Eenmaal tijdens de dag - Meerdere malen tijdens de dag - Ik had in deze periode een vaste werkplek.	Display This Question If Heeft u een vaste werkplek op het kantoor van Aestate/ Ontrafelexperts in Odijk? Onder werkplek… Nee Is Selected	Multiple Choice: Single Answer	Request Response	Page Break
Vóór corona (januari en februari 2020)	46	In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ontrafelexperts), structureel naar het kantoor in Odijk. De volgende vragen gaan over uw fysieke activiteit in deze periode als u in deze periode heeft gewerkt op het kantoor in Odijk. Mocht u niet deze gehele periode (januari en februari 2020) gewerkt hebben bij Aestate/ontrafelexperts, neem dan een doorsnee (werk)week binnen deze periode wanneer u wel werkte bij Aestate/ontrafelexperts.	- Ja - Nee	-	Multiple Choice: Single Answer	Request Response	Page Break

	Werkte u in de periode vóór corona (januari en februari 2020) structureel op het kantoor in Odijk?					
47	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd zowel op werkdagen als weekenddagen. Neem daarbij dus uw beweging tijdens uw reis- en werkuren niet mee. Vertrok u in de ochtend bijvoorbeeld om 7:30 naar het kantoor in Odijk en kwam u om 18:00 uur thuis, neem dan alleen uw beweging voor 7:30 en na 18:00 mee. Hoeveel dagen in de week lukte het u in de periode vóór corona (januari en februari 2020) in een doorsnee week om 30 minuten per dag te bewegen in uw vrije tijd?	- 0 dagen - 1 dag - 2 dagen - 3 dagen - 4 dagen - 5 dagen - 6 dagen - 7 dagen	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Multiple Choice: Single Answer	Request Response	Page break
48	Hoeveel dagen werkte u in de periode vóór corona (januari en februari 2020) in een doorsnee werkweek in totaal voor Aestate/ontrafelexperts?	- Minder dan 3 dagen, namelijk: [Text Entry] - 3 dagen - 3,5 dagen - 4 dagen - 4,5 dagen - 5 dagen - Meer dan 5 dagen, namelijk: [Text Entry]	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Multiple Choice: Single Answer	Request Response	Page break
49	Hoeveel dagen werkte u in de periode vóór corona (januari en februari 2020) in een doorsnee werkweek thuis voor Aestate/ontrafelexperts?	- 0 dagen - 0,5 dag - 1 dag - 1,5 dag - 2 dagen - 2,5 dag - 3 dagen - 3,5 dagen - 4 dagen - 4,5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Multiple Choice: Single Answer	Request Response	Page Break
50	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd op uw thuiswerkdagen. Neem daarbij dus uw beweging tijdens uw werkuren niet mee. Werkt u bijvoorbeeld van 8:30 tot 17:00 (inclusief pauzes), neem dan alleen uw beweging voor 8.30 en na 17:00 uur mee. Op hoeveel van uw zojuist genoemde thuiswerkdagen in een doorsnee werkweek lukte het u in de periode vóór corona (januari en februari 2020) gemiddeld om 30 minuten per dag te bewegen in uw vrije tijd?	- 0 dagen - 0 tot 1 dag - 1 dag - 1 tot 2 dagen - 2 dagen - 2 tot 3 dagen - 3 dagen - 3 tot 4 dagen - 4 dagen - 4 tot 5 dagen - 5 dagen - Meer dan 5 dagen, namelijk: [Text Entry]	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected And Hoeveel dagen werkte u in de periode vóór corona (januari en februari 2020) in een doorsnee werkw… 0 dag Is Not Selected	Multiple Choice: Single Answer	Request Response	Page break
51	Hoeveel dagen werkte u in de periode vóór corona (januari en februari 2020) in een doorsnee werkweek op het kantoor van Aestate/ontrafelexperts in Odijk?	- 0 dagen - 0,5 dag - 1 dag - 1,5 dag - 2 dagen - 2,5 dag - 3 dagen - 3,5 dagen - 4 dagen - 4,5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Multiple Choice: Single Answer	Request Response	-
52	Deze vraag gaat over de hoeveelheid beweging in uw vrije tijd op kantoorwerkdagen in Odijk. Neem	- 0 dagen - 0 tot 1 dag - 1 dag	Display This Question If In de periode vóór corona (januari en februari 2020)	Multiple Choice:	Request Response	Page break

		daarbij dus uw beweging tijdens uw reis- en werkuren niet mee. Vertrok u in de ochtend bijvoorbeeld om 7:30 naar het kantoor in Odijk en kwam u om 18:00 uur thuis, neem dan alleen uw beweging voor 7:30 en na 18:00 mee. Op hoeveel van uw zojuist genoemde kantoorwerkdagen in Odijk in een doorsnee werkweek lukte het u in de periode vóór corona (januari en februari 2020) in een doorsnee werkweek om 30 minuten per dag te bewegen in uw vrije tijd?	- 1 tot 2 dagen - 2 dagen - 2 tot 3 dagen - 3 dagen - 3 tot 4 dagen - 4 dagen - 4 tot 5 dagen - 5 dagen Meer dan 5 dagen, namelijk: [Text Entry]	mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Single Answer		
	-	De fysieke activiteit tijdens reis- en werkuren op het kantoor in Odijk kan niet of nauwelijks gemeten worden met een activiteitstracker vanwege de corona-maatregelen. Daarom worden er in deze enquête vragen gesteld over uw fysieke activiteit tijdens uw reis- en werkuren op het kantoor in Odijk vóór corona (januari en februari 2020).	-	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Text / Graphic: Text	-	Page break
	-	De fysieke activiteit tijdens reis- en werkuren op het kantoor in Odijk kan niet of nauwelijks gemeten worden met een activiteitstracker vanwege de corona-maatregelen. Daarom worden er in deze enquête vragen gesteld over uw fysieke activiteit tijdens uw reis- en werkuren op het kantoor in Odijk in de periode juni t/m september 2020.	-	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Nee Is Selected	Text / Graphic: Text	-	Page break
	-	De volgende vragen gaan over uw fysieke activiteit (lopen) tijdens uw werkuren op het kantoor in Odijk vóór corona (januari en februari 2020). Neem hierbij ook de zeer korte loopafstanden mee, zoals naar de printer of het koffiezetapparaat. Daarnaast is het belangrijk om ook uw werkpauzes mee te nemen. Neem niet uw fysieke activiteit tijdens uw reisuren mee.	-	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Text / Graphic: Text	-	-
	-	De volgende vragen gaan over uw fysieke activiteit (lopen) tijdens uw werkuren op het kantoor in Odijk in de periode juni t/m september 2020. Neem hierbij ook de zeer korte loopafstanden mee, zoals naar de printer of het koffiezetapparaat. Daarnaast is het belangrijk om ook uw werkpauzes mee te nemen. Neem niet uw fysieke activiteit tijdens uw reisuren mee.	-	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Nee Is Selected	Text / Graphic: Text	-	-
	53a	Hoeveel tijd besteedde u per dag (in minuten) tijdens uw werkuren op het kantoor in Odijk aan lopen?	[Text Entry]	-	Text Entry: Single Line	Request Response; Content Validation: Number, Max Decimals: 0	-
	53b	Hoeveel tijd besteedde u per dag (in procenten) tijdens uw werkuren op het kantoor in Odijk aan lopen?	[Text Entry]	-	Text Entry: Single Line	Request Response; Content Validation: Number, Minimum: 0, Maximum: 100 Max Decimals: 0	-
	54	Geef aan in hoeverre u het met de volgende stelling eens of oneens bent. Tijdens mijn werkuren op het kantoor in Odijk liep ik meer dan tijdens mijn	- Helemaal niet mee eens - Niet mee eens - Niet mee oneens en niet mee eens - Mee eens - Helemaal mee eens	-	Multiple Choice: Single Answer	Request Response	Page Break

		werkuren thuis op dit moment (vanaf oktober 2020).					
	54b	Weet u ongeveer hoeveel minuten u meer loopt tijdens uw werkuren op het kantoor in Odijk dan tijdens uw werkuren thuis op dit moment (vanaf oktober 2020)?	- Ja, ongeveer zoveel minuten meer: - Nee, ik heb geen idee	Display This Question If Geef aan in hoeverre u het met de volgende stelling eens of oneens bent. Tijdens mijn werkuren op het kantoren in Odijk liep ik meer dan tijdens mijn werkuren thuis op dit moment (vanaf oktober… Mee eens Is Selected Or Helemaal mee eens Is Selected	Multiple Choice: Single Answer	Request Response	Page Break
	54b	Weet u ongeveer hoeveel minuten u minder loopt tijdens uw werkuren op het kantoor in Odijk dan tijdens uw werkuren thuis op dit moment (vanaf oktober 2020)?	- Ja, ongeveer zoveel minuten minder: - Nee, ik heb geen idee	Display This Question If Geef aan in hoeverre u het met de volgende stelling eens of oneens bent. Tijdens mijn werkuren op het kantoren in Odijk liep ik meer dan tijdens mijn werkuren thuis op dit moment (vanaf oktober… Niet mee eens Is Selected Or Helemaal niet mee eens Is Selected	Multiple Choice: Single Answer	Request Response	Page Break
	-	De volgende vragen gaan over uw fysieke activiteit tijdens uw reisuren naar het kantoor in Odijk vóór corona (januari en februari 2020).	-	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected	Text / Graphic: Text	-	-
	-	De volgende vragen gaan over uw fysieke activiteit tijdens uw reisuren naar het kantoor in Odijk in de periode juni t/m september 2020.	-	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Nee Is Selected	Text / Graphic: Text	-	-
	55	Hoe reisde u voornamelijk naar het kantoor in Odijk? Er zijn meerdere antwoorden mogelijk.	- Lopend - Met de fiets - Met de elektrische fiets - Met de brommer - Met de auto/motor - Met het openbaar vervoer - Anders, namelijk: [Text Entry]	-	Multiple Choice: Multiple answer	Request Response	-
	56	Hoeveel minuten per dag bent u gemiddeld fysiek actief tijdens u reisuren naar het kantoor in Odijk?	[Text Entry]	-	Text Entry: Single Line	Request Response; Content Validation: Number, Max Decimals: 0	Page Break
	57	Geef aan in hoeverre u het met de volgende stellingen eens of oneens bent. Het gaat nog steeds over de periode vóór corona (januari en februari 2020). - Ik bewoog veel in mijn vrije tijd. - Op mijn thuiswerkdagen bewoog ik veel in mijn vrije tijd. - Op mijn thuiswerkdagen bewoog ik veel tijdens mijn werkuren. - Op mijn kantoorwerkdagen in Odijk bewoog ik veel in mijn vrije tijd. - Op mijn kantoorwerkdagen in Odijk bewoog ik veel tijdens mijn werkuren. - Op mijn kantoorwerkdagen in Odijk bewoog ik veel tijdens mijn reisuren van en naar kantoor.	- Helemaal niet mee eens - Niet mee eens - Niet mee oneens en niet mee eens - Mee eens - Helemaal mee eens	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected Op mijn thuiswerkdagen bewoog ik veel in mijn vrije tijd. [Display this Choice only if the following condition is met: Question 49 Hoeveel dagen ..doorsnee werk… 0 dag Is Not Selected]	Matrix Table: Likert; Single Answer	Request Response	Page break

		- Ik ben tevreden met de hoeveelheid die ik bewoog. - Ik had een aandoening die mijn dagelijkse beweging beperkt.		Op mijn thuiswerkdagen bewoog ik veel tijdens mijn werkuren. [Display this Choice only if the following condition is met: Question 49 Hoeveel dagen ..doorsnee werk… 0 dag Is Not Selected]			
	58	Hoe vaak veranderde u van thuiswerkplek in de periode vóór corona (januari en februari 2020)? Het begrip thuiswerkplek kunt u breed interpreteren. Het kan bijvoorbeeld een specifiek bureau, (keuken)tafel of zitbank zijn.	- Nooit - Minder dan één keer per week - 1-2 keer per week - 3-4 keer per week - Bij de start van elke dag - Eenmaal tijdens de dag - Meerdere malen tijdens de dag	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected And Hoeveel dagen werkte u in de periode vóór corona (januari en februari 2020) in een doorsnee werkw… 0 dag Is Not Selected	Multiple Choice: Single Answer	Request Response	-
	58b	Hoe vaak veranderde u van werkplek op het kantoor in Odijk in de periode vóór corona (januari en februari 2020)? Onder werkplek wordt een specifiek bureau bedoeld.	- Nooit - Minder dan één keer per week - 1-2 keer per week - 3-4 keer per week - Bij de start van elke dag - Eenmaal tijdens de dag - Meerdere malen tijdens de dag - Ik had in deze periode een vaste werkplek.	Display This Question If In de periode vóór corona (januari en februari 2020) mocht u van uw organisatie (Aestate/ Ontrafelexperts), structureel… Ja Is Selected And Heeft u een vaste werkplek op het kantoor van Aestate/Ontrafelexperts in Odijk? Onder werkplek wo… Nee Is Selected	Multiple Choice: Single Answer	Request Response	Page Break
Afronding	59	Voor de komende periode, geef aan of u beschikbaar bent voor het onderzoek. - 9 t/m 13 november - 16 t/m 20 november - 23 t/m 27 november	- Beschikbaar - Verminderd beschikbaar - Niet beschikbaar - Nog niet bekend	-	Matrix Table: Likert; Single Answer	Request Response	Page break
	60	Wilt u nog iets kwijt over het onderzoek of de enquête of heeft u een vraag? Zijn er bijvoorbeeld bijzonderheden die van invloed kunnen zijn op het onderzoek?	[Text Entry]	-	Text Entry: Essay Text Box	-	Page Break
	-	Standaard tekst	-	End of survey	-	-	-

13/05/2021

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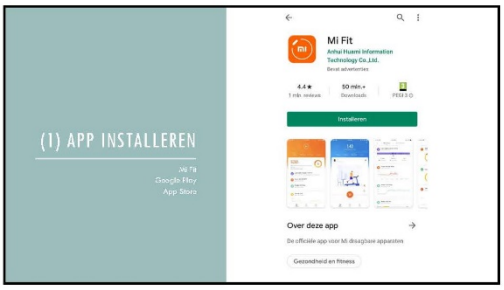
3



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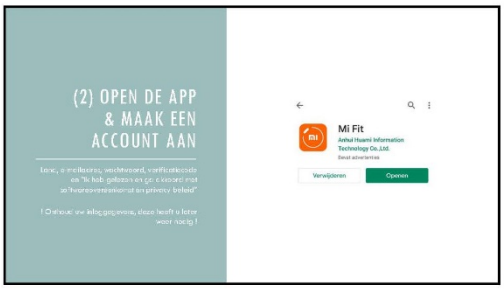

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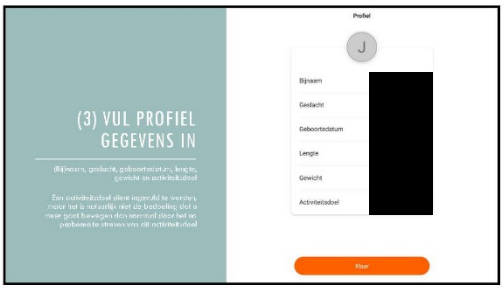

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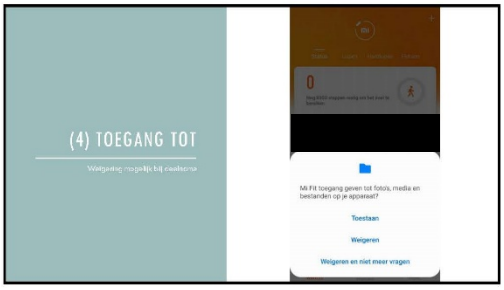
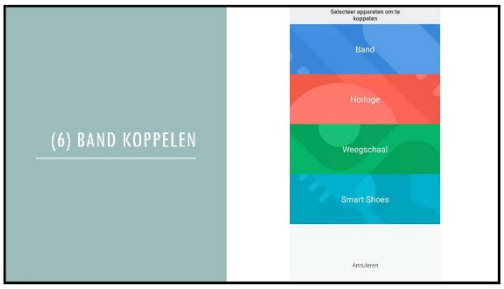

(4) TOEGANG TOT
Mi Fit toegang geven tot foto's, media en bestanden op je apparaat?
Toestaan
Weigeren
Weigeren en niet meer vragen

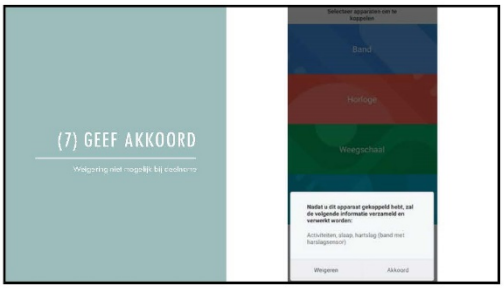
7


(5) APPARAAT KOPPELEN

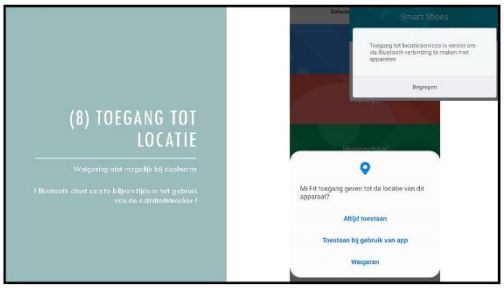
8


(6) BAND KOPPELEN
Band
Horloge
Weegschaal
Smart Shoes

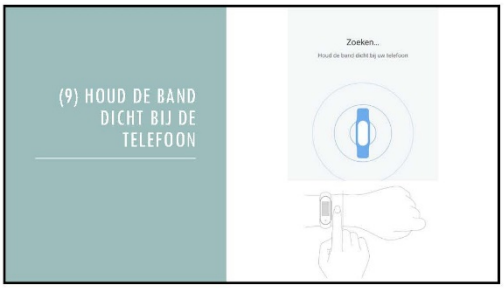
9


(7) GEEF AKKOORD
Band
Horloge
Weegschaal

10


(8) TOEGANG TOT LOCATIE
Mi Fit toegang geven tot de locatie van dit apparaat?
Altijd toestaan
Toestaan bij gebruik van app
Weigeren

11


(9) HOUD DE BAND DICHT BIJ DE TELEFOON
Zoeken...

12

(10) BEVESTIG DE KOPPELING OP DE BAND

13

(11) KLAAR VOOR GEBRUIK

14

2. MEETPROCEDURE

Wanneer de meetperiode plaatsvindt, staat in de mail die u ontvangen heeft voor deze handleiding de bijlage van wez

1. Draag de activiteitstracker gedurende vijf opeenvolgende werkdagen (maandag t/m vrijdag). Werkt u minder dan vijf dagen per week? Voer dan alsnog het gehele logboek in, zodat tot duidelijk is wanneer u wel en niet heeft gewerkt.
2. Draag de activiteitstracker in ieder geval tijdens uw reis- en werkuren zowel op thuiswerkdagen als kantoorwerkdagen. Tijd: Streep de activiteitenbalken die gelden (dag zelfde / halve dag) opgaat te dragen. Voorbeeld: Normaal Werkt u van 8:00 tot 17:00 uur, streep de activiteitenbalken van 8:00 tot 17:00 uur. Voorbeeld: Gedeeld Gemiddeld Parttime: U bent alleen van 7:00 voor het kantoor u moet u de dagen u werkt van 11:00 tot 16:00 uur, streep de activiteitenbalken van 7:00 tot 16:00.
3. Vul het logboek gedurende dezelfde vijf opeenvolgende (werk)dagen in (maandag t/m vrijdag). Werkt u minder dan vijf dagen per week? Vul dan alsnog het gehele logboek in, zodat tot duidelijk is wanneer u wel en niet heeft gewerkt.
4. Vul in ieder geval dagelijks het logboek in. U krijgt iedere dag een reminder toegestuurd. Tijd: Laat het logboek de gehele dag open staan op uw computer of gebruik Medespoor om uw beweggewoonten, redenen voor beweging en frituurbranding tijd te onthouden. Tip: vul misschien kleine per dag het logboek in.
5. Vul ook twee "extra werkdagen" toe aan het logboek. Deze extra werkdagen streeften de zaterdagen/zondagen en andere vrije dag/ging op een doordeweekse werkdag op het kantoor in Utrecht en Driebergen. Dit is ook hoe's van uw gehoorgen.
6. Meer informatie over het invullen van het logboek kunt u vinden op de volgende dia's. Lees dit zorgvuldig door.
7. [redacted]
8. Heeft u hulp nodig tijdens of na de meetperiode? Of heeft u vragen of opmerkingen? Neem dan contact op met de onderzoeker, Mattie de Groot, [redacted]

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3. HANDLEIDING LOGBOEK

Het logboek is bedoeld om een aantal zaken bij te houden tijdens de meetperiode van vijf opeenvolgende werkdagen (maandag t/m vrijdag). Hierbij een korte beschrijving waar er allemaal bijgehouden moet worden en hoe. Er worden ook voorbeelden gegeven.

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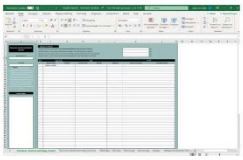
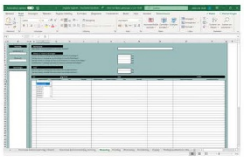
DIGITAAL LOGBOEK



17

ANTWOORDCELLEN



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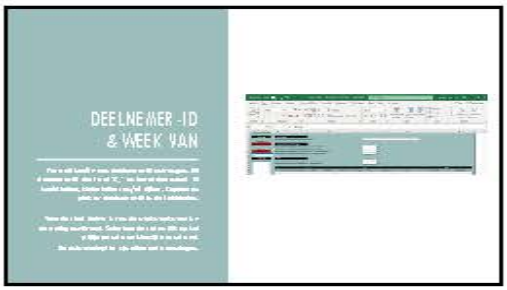

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KANTOORWERKDAG

De antwoordopties zijn afgerond op kwartieren.

! Tussen de antwoorden (tijden) van vraag 1 en 4 dient u in ieder geval de activiteitstracker te dragen !

1. Hoe laat vertrok u vandaag naar het kantoor in Utrecht of Groningen?
2. Hoe laat kwam u vandaag aan op het kantoor in Utrecht of Groningen?
3. Hoe laat vertrok u vandaag naar huis vanaf het kantoor in Utrecht of Groningen?
4. Hoe laat kwam u vandaag thuis vanaf het kantoor in Utrecht of Groningen?

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THUIS- EN KANTOORWERKDAG

De antwoordopties zijn afgerond op kwartieren.

1. Hoe laat vertrok u vandaag naar het kantoor in Utrecht of Groningen?
2. Hoe laat kwam u vandaag aan op het kantoor in Utrecht of Groningen?
3. Hoe laat vertrok u vandaag naar huis vanaf het kantoor in Utrecht of Groningen?
4. Hoe laat kwam u vandaag thuis vanaf het kantoor in Utrecht of Groningen?
5. Hoe laat begon u vandaag thuis met werken voor draaijer+partners?
6. Hoe laat stopte u vandaag thuis met werken voor draaijer+partners?

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BEWEGINGSPATRONEN & REDENEN VAN BEWEGING

De antwoordopties zijn afgerond op kwartieren.

Het kan voorkomen dat uw antwoord er niet tussenstaat, selecteer dan het antwoord "**andere, namelijk**" en vul in de cel ernaast uw antwoord in.

Het gaat om zowel om verplaatsing binnen en buiten. Verplaatst u zich buiten? Selecteer dan het antwoord "**buiten, namelijk**" en vul in de cel ernaast de specifieke buitenlocatie in. Bijvoorbeeld: "Supermarkt", "parkeerplaats", "fietsenrek", "bankje of (...)", "park", etc.

Gebruik de tabbladen "**plattegrond kantoor**" voor de benaming van de ruimtes.

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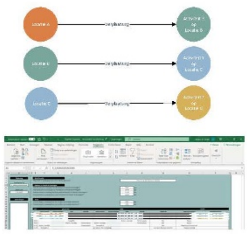
BEWEGINGSPATRONEN & REDENEN VAN BEWEGING

Bij elke verplaatsing tijdens werkuren (inclusief werkpauzes) thuis en reis- en werkuren (inclusief werkpauzes) op kantoor, één rij invullen.

Vanaf locatie A verplaatste ik mij naar locatie B om activiteit X uit te voeren. (Nieuwe rij) Vanaf deze locatie (B) verplaatste ik mij naar locatie C om activiteit Y uit te voeren. (Nieuwe rij) etc.

Het kan voorkomen dat u niet alle rijen hoeft in te vullen. Verplaatst u zich vaak, dan kan het voorkomen dat u zelf rijen moet toevoegen.



34

BEWEGINGSPATRONEN & REDENEN VAN BEWEGING

Denk verder bijvoorbeeld nog aan…

Het gaat om het lopen, maar… Verplaatst u zich met een **ander vervoersmiddel** tijdens werkuren, bijvoorbeeld tijdens een pauze, geef dit aan bij de toelichting in de desbetreffende rij.

Heeft u zich naar een locatie verplaats om meerdere redenen? Vul dan de **zwaarst wegende reden** in. In de toelichting kan u eventueel de andere redenen benoemen als deze bijna net zo belangrijk zijn als de zwaarst wegende reden.

Vergeet verder niet het eventuele **trapgebruik** aan te geven in de desbetreffende kolom.

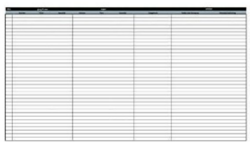
35

BEWEGINGSPATRONEN & REDENEN VAN BEWEGING

Verplaatsingen (bewegingen) en activiteiten onthouden is redelijk lastig, vandaar deze twee tips:

Tip 1: Laat het logboek de gehele dag open staan op uw computer of gebruik kladpapier om uw bewegingspatronen, redenen voor beweging en bijbehorende tijd te onthouden. Een geprinte versie van het digitale logboek kunt u hiervoor gebruiken. Dit kladpapier kunt u eventueel daarna ook gebruiken als definitieve versie en inscannen en opsturen.

Tip 2: Vul meerdere keren per dag het logboek in.



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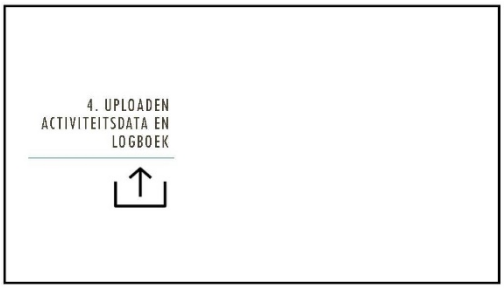

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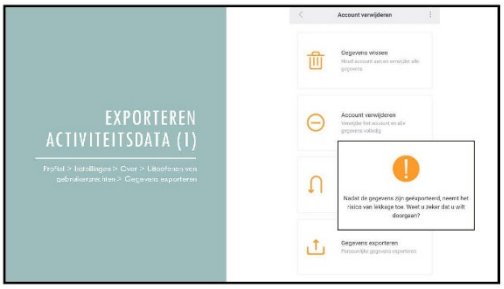

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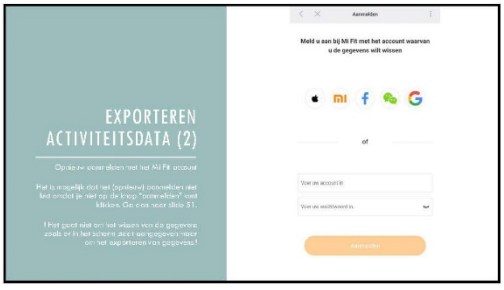

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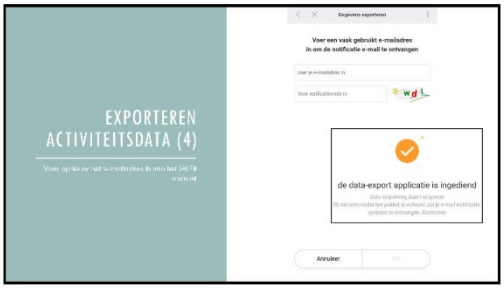

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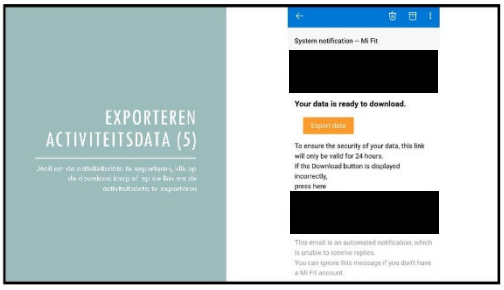

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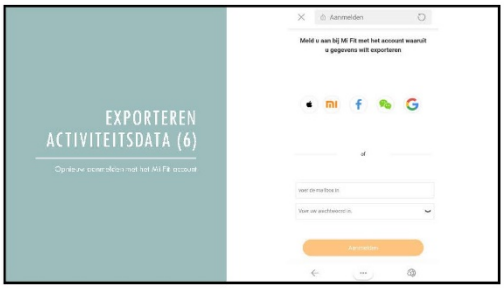

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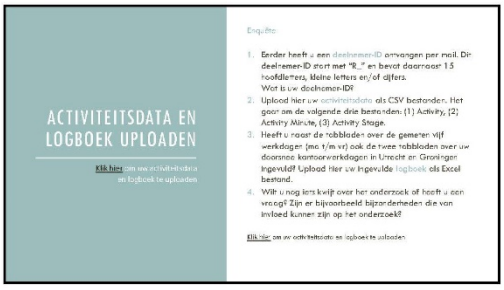

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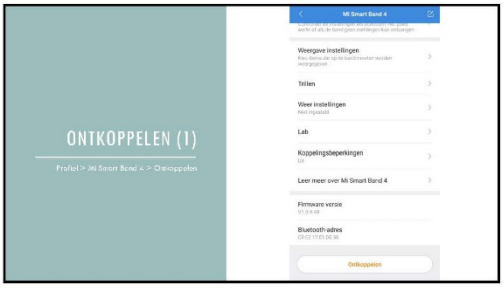

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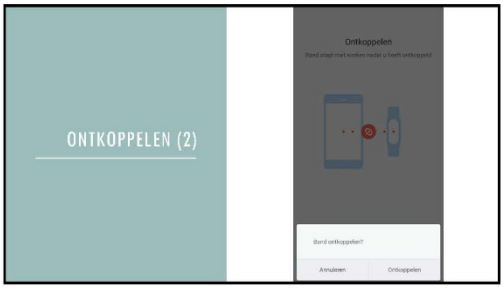

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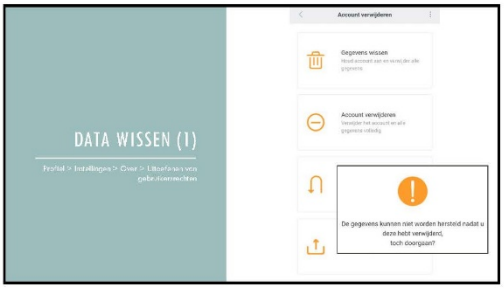

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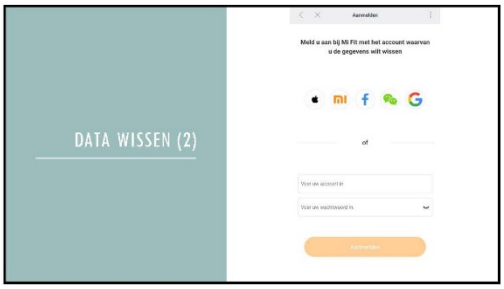

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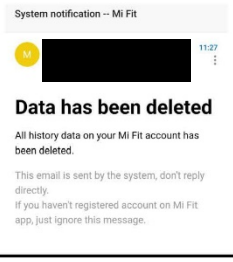
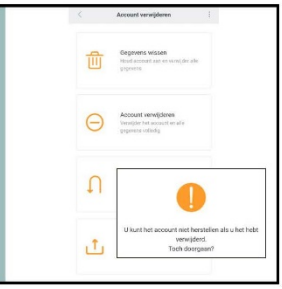
DATA WISSEN (6)



61

ACCOUNT VERWIJDEREN (1)

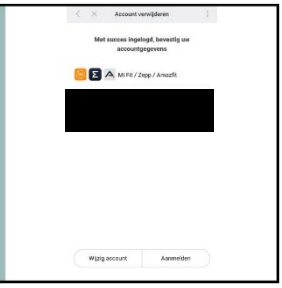


62

ACCOUNT VERWIJDEREN (2)

63

ACCOUNT VERWIJDEREN (3)



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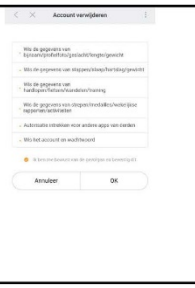
ACCOUNT VERWIJDEREN (4)



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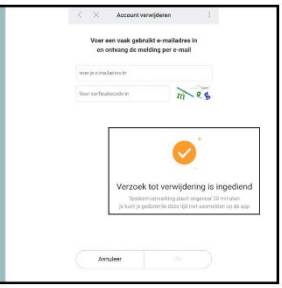
ACCOUNT VERWIJDEREN (5)



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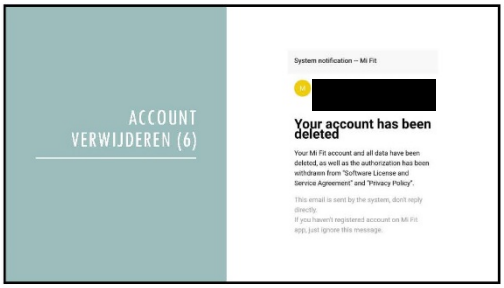
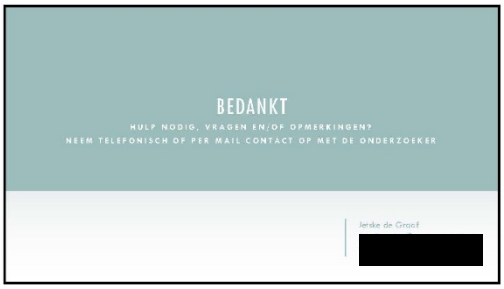

ACCOUNT VERWIJDEREN (6)
System notification – Mi Fit
[redacted]
Your account has been deleted
Your Mi Fit account and all data have been deleted, as well as the authorization has been withdrawn from "Software License and Service Agreement" and "Privacy Policy".
This email is sent by the system, don't reply directly.
If you haven't registered account on Mi Fit app, just ignore this message.

67


7. RETOURNEREN ACTIVITEITSTRACKER
[redacted]
U heeft een brief ontvangen met daarin één activiteitstracker en retourenvelop met postzegel. De activiteitstracker dient u na het exporteren en uploaden van uw activiteitsdata retour te sturen naar het adres op deze dia. Hiervoor kunt u de retourenvelop met postzegel gebruiken. Bij voorkeur dient dit te gebeuren in de week na de meringen.

68


BEDANKT
HULP NODIG, VRAGEN EN/OF OPMERKINGEN?
NEEM TELEFONISCH OF PER MAIL CONTACT OP MET DE ONDERZOEKER
Ierske de Groot
[redacted]

69

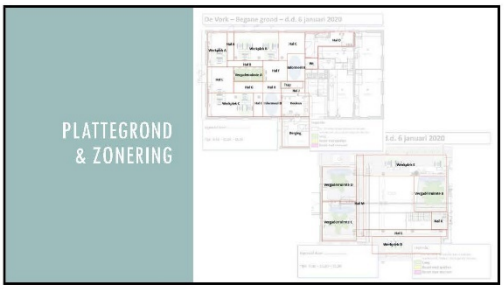
3. Focus group Aestate

13/05/2021

1

2

3



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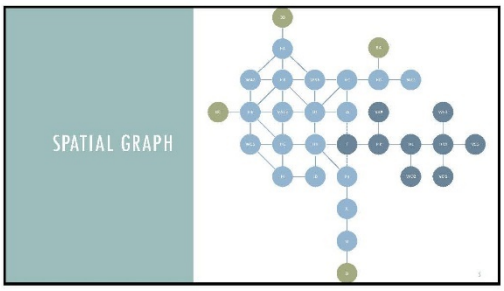

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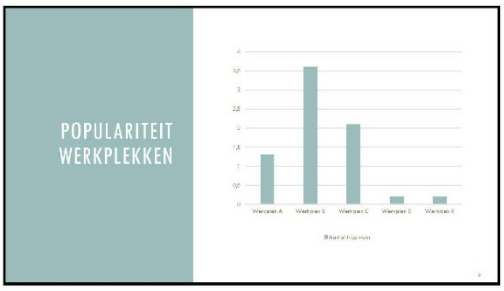
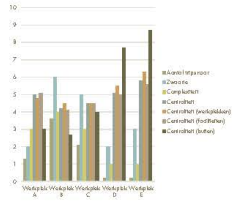


6

INDELING VAN RUIMTES



7

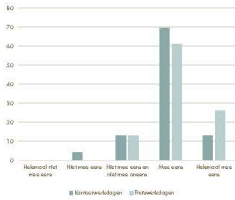
KANTOOR

Heeft de indeling van ruimtes invloed op je werkplek keuze?

Of zijn er belangrijkere redenen die je werkplek keuze beïnvloeden?

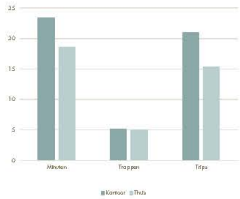
8

IN DE TOEKOMST WIL IK MEER BEWEGEN TIJDENS MIJN ...



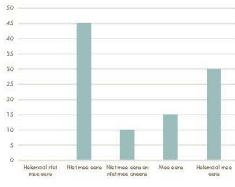
9

LOPEN TIJDENS WERKUREN ...



10

TIJDENS MIJN WERKUREN OP HET KANTOOR IN ODIJK LIEP IK MEER DAN TIJDENS MIJN WERKUREN THUIS OP DIT MOMENT (VANAF OKTOBER 2020)



11

KANTOOR & THUIS

Wat heb je nodig om daadwerkelijk meer te gaan bewegen tijdens werkuren?

Is dat thuis anders dan op kantoor?

Denk aan persoonlijke, sociale, culturele, organisatorische en ruimtelijke factoren.

12


BEDANKT!
Jetske de Graaf
03-05-2021
[redacted]
Technische Universiteit Delft
Faculteit Bouwkunde
Management in the Built Environment

13

4. Focus group draaijer+partners

13/05/2021

1

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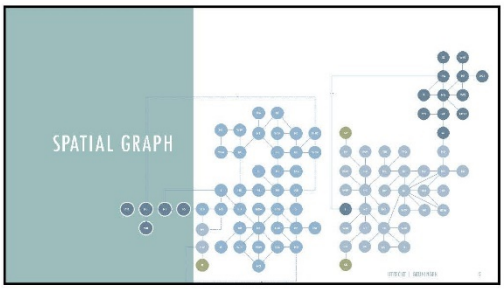

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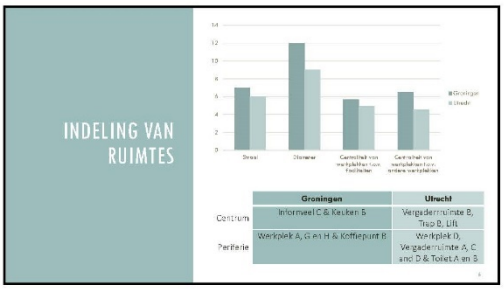

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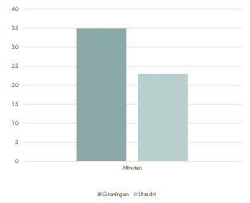
LOPEN TIJDENS WERKUREN . . .



7

KANTOOR

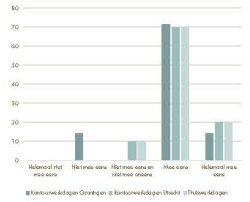
Is dit verschil in gelopen minuten representatief of is dit toeval vanwege het lage aantal respondenten?

Heeft het verschil in de indeling van ruimtes invloed op dat er meer gelopen wordt op het kantoor in Groningen dan op het kantoor in Utrecht?

Of zijn er belangrijkere redenen die dit verschil veroorzaken?

8

IN DE TOEKOMST WIL IK MEER BEWEGEN TIJDENS MIJN ...



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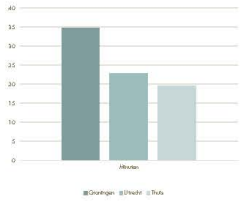
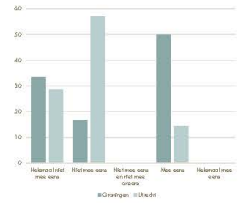
LOPEN TIJDENS WERKUREN . . .



10

TIJDENS MIJN WERKUREN OP HET KANTOOR IN . . . LIEP IK MEER DAN TIJDENS MIJN WERKUREN THUIS OP DIT MOMENT (VANAF OKTOBER 2020)



11

KANTOOR & THUIS

Wat heb je nodig om daadwerkelijk meer te gaan bewegen tijdens werkuren?

Is dat thuis anders dan op kantoor?

En, is dat op het kantoor in Groningen anders dan op het kantoor in Utrecht?

Denk aan persoonlijke, sociale, culturele, organisatorische en ruimtelijke factoren.

12


BEDANKT!
Jetske de Graaf
04-05-2021
[redacted]
Technische Universiteit Delft
Faculteit Bouwkunde
Management in the Built Environment

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Appendix C – Quantitative results

1. Physical activity during working hours at home working for Aestate and draaijer+partners

Since October 2020			Aestate	draaijer+partners[1]
Steps	Activity tracker & Logbook	Mean	1864	1950
		Std. Deviation	1387	584
		Minimum	617	1249
		Maximum	5012	2826
		n	16[2]	6
Minutes	100 steps/min	Mean	18,6	19,5
		Std. Deviation	13,9	5,9
		Minimum	6,2	12,5
		Maximum	50,1	28,3
		n	16	6
Stairs climbed	Logbook	Mean	5,0	8,2
		Std. Deviation	7,3	8,8
		Minimum	0,0	1,0
		Maximum	21,0	23,0
		n	11[3]	5[4]
Frequency	Activity tracker & Logbook	Mean	15,3	16,6
		Std. Deviation	3,8	5,2
		Minimum	9,2	7,7
		Maximum	21,0	22,0
		n	11	6

[1] On average 2,7 full working days at home per respondent are measured, with a minimum of one day and maximum of four days. The days including a possible trip by car are excluded due to the fact that the activity tracker measured steps in the car. Also days with incomplete activity data were excluded. Two out of the ten respondents didn't participate in this part of the study. Two out of the ten respondents did not hand-in the activity data and logbook.

[2] On average 3,6 full working days at home per respondent are measured, with a minimum of two days and maximum of five days. The days including a possible trip by car are excluded due to the fact that the activity tracker measured steps in the car. Also days with incomplete activity data were excluded. One out of the twenty-three respondent did not hand-in the activity data and logbook. Five out of the twenty-three respondents got an empty csv file by exporting the activity data. One respondent had only full working days at home with incomplete activity data.

[3] On average 3,5 full working days at home per respondent are measured, with a minimum of two days and maximum of five days. For five out of the sixteen respondents, it was impossible to connect the logbook with the activity data for at least one day. For one respondent out of the sixteen, it was possible to connect the logbook with the activity tracker for at least one day, but not for all full working days at home.

[4] One respondent did not indicate the climbed stairs.

2. Perceived physical activity during working hours at home working for Aestate and draaijer+partners

On my working days at home, I move(d) a lot during my working hours		Aestate		Draaijer+partners	
		%	n	%	n
Before COVID-19 pandemic	Strongly disagree	36,4	4	0	0
	Disagree	36,4	4	66,7	2
	Neither agree nor disagree	18,2	2	0	0
	Agree	9,1	1	0	0
	Strongly agree	0	0	33,3	1
	Total		11		3
June till September 2020	Strongly disagree	21,7	5	12,5	1
	Disagree	56,5	13	62,5	5
	Neither agree nor disagree	13,0	3	12,5	1
	Agree	8,7	2	12,5	1
	Strongly agree	0	0	0	0
	Total		23		8
Since October 2020	Strongly disagree	17,4	4	10,0	1
	Disagree	65,2	15	80,0	8
	Neither agree nor disagree	13,0	3	10,0	1
	Agree	4,3	1	0	0
	Strongly agree	0	0	0	0
	Total		23		10

3. Physical activity during spare time at working days at home working for Aestate and draaijer+partners

Working days at home per average week with at least 30 minutes of physical activity during spare time		Aestate		Draaijer+partners	
		%	Days	%	Days
Before COVID-19 pandemic	Mean			83,3%	1,0
	Std. Deviation			23,6%	0,0
	Minimum			66,7%	1,0
	Maximum			100,0%	1,0
	n				2[5]
June till September 2020	Mean			74,6%	1,9
	Std. Deviation			29,1%	0,8
	Minimum			33,3%	1,0
	Maximum			100,0%	3,0
	n				6[6]
Since October 2020	Mean			71,8%	2,7
	Std. Deviation			30,6%	1,5
	Minimum			29,0%	1,0
	Maximum			100,0%	5,0
	n				9[7]

[5] One respondent did indicate to have more workdays at home with at least 30 minutes of physical activity during spare time than workdays at home. This is recorded as a non-response.
[6] Two respondents did indicate to have more workdays at home with at least 30 minutes of physical activity during spare time than workdays at home. This is recorded as a non-response.
[7] One respondent did indicate to have more workdays at home with at least 30 minutes of physical activity during spare time than workdays at home. This is recorded as a non-response.

4. Perceived physical activity during spare time at working days at home working for Aestate and draaijer+partners

On my working days at home, I move(d) a lot during my spare time		Aestate		draaijer+partners	
		%	n	%	n
Before COVID-19 pandemic	Strongly disagree	9,1	1	0	0
	Disagree	45,5	5	33,3	1
	Neither agree nor disagree	27,3	3	0	0
	Agree	9,1	1	0	0
	Strongly agree	9,1	1	66,6	2
	Total		11		3
June till September 2020	Strongly disagree	8,7	2	0	0
	Disagree	26,1	6	12,5	1
	Neither agree nor disagree	26,1	6	25,0	2
	Agree	30,4	7	37,5	3
	Strongly agree	8,7	2	25,0	2
	Total		23		8
Since October 2020	Strongly disagree	8,7	2	10,0	1
	Disagree	26,1	6	30,0	3
	Neither agree nor disagree	34,8	8	0	0
	Agree	21,7	5	50,0	5
	Strongly agree	8,7	2	10,0	1
	Total		23		10

5. Willingness to move more at working days at home working for Aestate and draaijer+partners

In the future, I want to move more at my working days at home	Aestate		Draaijer+partners	
	%	n	%	n
Strongly disagree	0	0	0	0
Disagree	0	0	0	0
Neither agree nor disagree	13,0	3	10,0	1
Agree	60,9	14	70,0	7
Strongly agree	26,1	6	20,0	2
Total		23		10

6. Physical activity during working hours at the office in Odijk, Utrecht and Groningen

Before COVID-19 pandemic			Odijk[8]	Utrecht[9]	Groningen[10]
Minutes	Survey	Mean	23,4	22,8	34,8
		Std. Deviation	9,1	15,5	23,9
		Minimum	10	4	4
		Maximum	45	45	60
		n	19[11]	5[12]	4[13]
Percentage	Survey	Mean	6,1	6,8	9,3
		Std. Deviation	6,0	2,4	4,0
		Minimum	1	5	5
		Maximum	30	10	13
		n	20[14]	4[15]	3[16]
Stairs climbed	Logbook	Mean	5,1	2,5	2,0
		Std. Deviation	2,8	3,5	-
		Minimum	2	0	2
		Maximum	12	5	2
		n	14[17]	2[18]	1[19]
Frequency	Logbook	Mean	21,0	13,5	20,0
		Std. Deviation	6,5	7,8	-
		Minimum	10	8	20,0
		Maximum	33	19	20,0
		n	14	2	1

[8] Respondents (n = 2) average walking time in minutes and percentage, climbed stairs and frequency at the office during working hours in the period June till September 2020 is not shown because of privacy reasons.
[9] No respondents who started to work during the COVID-19 pandemic at the office in Utrecht handed-in their logbook or indicated their average day at the office in Utrecht.
[10] No respondents who started to work during the COVID-19 pandemic at the office in Groningen handed-in their logbook or indicated their average day at the office in Groningen.
[11] The answers “0” and “1” minutes are marked as non-response.
[12] The answer “0”, answered twice, is marked as non-response.
[13] The answer “0”, answered twice, is marked as non-response.
[14] The answer “0” is marked as non-response. / not worked before the COVID-19 pandemic
[15] Three respondents did not indicate their walking time in percentage.
[16] Two respondents did not indicate their walking time in percentage and the answer “0” is marked as non-response.
[17] From the twenty respondents who worked before the COVID-19 pandemic at the office in Odijk, one respondent did not hand-in the logbook and five respondents did not indicate their average day at the office.
[18] Three out of the five respondents who worked before the COVID-19 pandemic at the office in Utrecht and handed-in their logbook, did not indicate their average day at the office in Utrecht.
[19] Two out of the three respondents who worked before the COVID-19 pandemic at the office in Groningen and handed-in their logbook, did not indicate their average day at the office in Groningen.

7. Perceived physical activity during working hours at the office in Odijk, Utrecht and Groningen

On my working days at the office, I move(d) a lot during my working hours		Odijk		Utrecht		Groningen	
		%	n	%	n	%	n
Before COVID-19 pandemic	Strongly disagree	10,0		14,3	1	16,7	1
	Disagree	30,0	6	57,1	4	33,3	2
	Neither agree nor disagree	45,0	9	14,3	1	16,7	1
	Agree	15,0	3	14,3	1	33,3	2
	Strongly agree	0	0	0	0	0	0
	Total		20		7		6
June till September 2020	Strongly disagree	17,4	4	0	0	20,0	1
	Disagree	30,4	7	57,1	4	40,0	2
	Neither agree nor disagree	34,8	8	14,3	1	40,0	2
	Agree	13,0	3	28,6	2	0	0
	Strongly agree	4,3	1	0	0	0	0
	Total		23		7		5
Since October 2020	Strongly disagree	-	-	33,0	2	20,0	1
	Disagree	-	-	50,0	3	60,0	3
	Neither agree nor disagree	-	-	0	0	0	0
	Agree	-	-	16,7	1	20,0	1
	Strongly agree	-	-	0	0	0	0
	Total		-		6		5

8. Physical activity during commuting to the office in Odijk, Utrecht and Groningen

Before COVID-19 pandemic			Odijk	Utrecht	Groningen
Minutes	Survey	Mean	13,8	8,3	1,2
		Std. Deviation	31,6	21,1	2,1
		Minimum	0	0	0
		Maximum	140	56	5
		n	20	7	6

9. Perceived physical activity during commuting

On my working days at the office, I move(d) a lot during my commuting to and from the office		Odijk		Utrecht		Groningen	
		%	n	%	N	%	n
Before COVID-19 pandemic	Strongly disagree	50,0	10	57,1	4	66,7	4
	Disagree	35,0	7	14,3	1	16,7	1
	Neither agree nor disagree	0	0	14,3	1	16,7	1
	Agree	10,0	2	0	0	0	0
	Strongly agree	5,0	1	14,3	1	0	0
	Total		20		7		6
June till September 2020	Strongly disagree	34,8	8	42,9	3	60,0	3
	Disagree	47,8	11	28,6	2	20,0	1
	Neither agree nor disagree	13,0	3	14,3	1	20,0	1
	Agree	0	0	0	0	0	0
	Strongly agree	4,3	1	14,3	1	0	0
	Total		23		7		5
Since October 2020	Strongly disagree	-	-	50,0	3	80,0	4
	Disagree	-	-	16,7	1	20,0	1
	Neither agree nor disagree	-	-	0	0	0	0
	Agree	-	-	16,7	1	0	0
	Strongly agree	-	-	16,7	1	0	0
	Total		-		6		5

10. Physical activity during spare time at working days at the office in Odijk, Utrecht and Groningen

Working days at the office per average week with at least 30 minutes of physical activity during spare time		Odijk		Utrecht		Groningen	
		%	Days	%	Days	%	Days
Before COVID-19 pandemic	Mean	49,0%	2,2				
	Std. Deviation	38,4%	1,7				
	Minimum	0,0%	0				
	Maximum	100,0%	5				
	n	20	20				
June till September 2020	Mean						
	Std. Deviation						
	Minimum						
	Maximum						
	n						
Since October 2020	Mean	-	-	100,0	2,0	0,0	0,0
	Std. Deviation	-	-	0,0	1,4	0,0	0,0
	Minimum	-	-	100,0	1,0	0,0	0,0
	Maximum	-	-	100,0	3,0	0,0	0,0
	n	-	-		2[20]		2[21]

[20] One respondent did indicate to have more workdays at the office in Utrecht with at least 30 minutes of physical activity during spare time than workdays at the office. This is recorded as a non-response. The other three respondents indicated to work in this period at the office in Utrecht, but not in an average workweek.

[21] Three respondents indicated to work in this period at the office in Groningen, but not in an average workweek.

11. Perceived physical activity during spare time at working days at the office in Odijk, Utrecht and Groningen

On my working days at the office, I move(d) a lot during my spare time		Odijk		Utrecht		Groningen	
		%	n	%	n	%	n
Before COVID-19 pandemic	Strongly disagree	10,0	2	14,3	1	0	0
	Disagree	35,0	7	42,9	3	33,3	2
	Neither agree nor disagree	35,0	7	14,3	1	16,7	1
	Agree	10,0	2	14,3	1	33,3	2
	Strongly agree	10,0	2	14,3	1	16,7	1
	Total		20		7		6
June till September 2020	Strongly disagree	17,4	4	0	0	20,0	1
	Disagree	34,8	8	14,3	1	20,0	1
	Neither agree nor disagree	21,7	5	28,6	2	20,0	1
	Agree	17,4	4	42,9	3	40,0	2
	Strongly agree	8,7	2	14,3	1	0	0
	Total		23		7		5
Since October 2020	Strongly disagree	-	-	16,7	1	20,0	1
	Disagree	-	-	16,7	1	20,0	1
	Neither agree nor disagree	-	-	0	0	20,0	1
	Agree	-	-	66,7	4	40,0	2
	Strongly agree	-	-	0	0	0	0
	Total		-		6		5

12. Willingness to move more at working days at the office in Odijk, Utrecht and Groningen

In the future, I want to move more at my working days at the office	Odijk		Utrecht		Groningen	
	%	n	%	N	%	n
Strongly disagree	0	0	0	0	0	0
Disagree	4,3	1	0	0	14,3	1
Neither agree nor disagree	13,0	3	10,0	1	0	0
Agree	69,6	16	70,0	7	71,4	5
Strongly agree	13,0	3	20,0	2	14,3	1
Total		23		10[22]		7[23]

[22] All respondents did work at least one period at the office Utrecht.
[23] Three respondents did never work at the office in Groningen.

13. Differences in walking during working hours between at the office in Odijk, Utrecht and Groningen and home working for Aestate and draaijer+partners

Office (before COVID-19 pandemic) versus home (since October 2020)			Odijk	Utrecht	Groningen
Minutes more at the office than at home	Survey	Mean	20,8		
		Std. Deviation	8,0		
		Minimum	10		
		Maximum	30		
		n	6[24]		
Minutes less at the office than at home	Survey	Mean	21,7		
		Std. Deviation	7,6		
		Minimum	15		
		Maximum	30		
		n	3[25]		
Differences between minutes at the office and minutes at home	Minutes office – minutes home	Mean	2,8	-5,6	9,0
		Std. Deviation	10,8	7,7	32,1
		Minimum	-12,2	-13,7	-13,7
		Maximum	23,4	1,7	31,7
		n	13	3	2

14. Perceived differences in walking during working hours between at the office in Odijk, Utrecht and Groningen and home working for Aestate and draaijer+partners

During my working hours at the office before the COVID-19 pandemic, I walked more than during my working hours at home since October 2020	Odijk		Utrecht		Groningen	
	%	n	%	N	%	n
Strongly disagree	0	0	28,6	2	33,3	2
Disagree	45,0	9	57,1	4	16,7	1
Neither agree nor disagree	10,0	2	0	0	0	0
Agree	15,0	3	14,3	1	50,0	3
Strongly agree	30,0	6	0	0	0	0
Total		20		7		6

[24] From the respondents who indicated to move more at the office than at home, three respondents did indicate to have no idea how much minutes more.
[25] From the respondents who indicated to move less at the office than at home, six respondents did indicate to have no idea how much minutes less.

15. Correlation between minutes walking during working hours at the office and steps during working hours at home

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
Steps during working hours at home	Pearson Correlation	0,448	0,999*	1,000***
	Sig. (2-tailed)	0,125	0,034	0,000
	n	13	3	2

16. Number of trips and steps per reason of movement within and around the home work environment of employees working for Aestate and draaijer+partners

	Aestate								draaijer+partners							
	n = 11								n = 6							
	Frequency				Steps				Frequency				Steps			
Since October 2020	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum
Jas ophangen/pakken	0,0	0,1	0,0	0,3	0	0	0	0	0,3	0,8	0,0	2,0	18	44	0	108
Spullen inpakken	0,1	0,3	0,0	0,8	2	4	0	10	0,1	0,3	0,0	0,7	4	10	0	26
Toiletteren	2,3	1,9	0,0	6,7	106	93	0	281	1,4	1,0	0,3	2,7	66	90	14	246
Drinken halen / Koffie/thee halen	2,3	0,8	0,7	3,3	125	76	44	250	2,4	1,7	0,0	4,5	194	204	0	580
Eten halen	0,6	1,0	0,0	3,3	50	75	0	183	0,5	0,5	0,0	1,3	65	73	0	154
Huishoudelijke activiteit	-	-	-	-	-	-	-	-	0,2	0,2	0,0	0,5	25	29	0	64
Installeren op werkplek	1,3	2,6	0,0	8,3	5	9	0	29	0,1	0,1	0,0	0,3	0	0	0	0
Online: Interactief bureauwerk	0,0	0,0	0,0	0,0	0	0	0	0	0,2	0,4	0,0	1,0	0	0	0	0
Online: Gepland overleg	0,9	1,7	0,0	5,0	55	173	0	576	0,8	0,5	0,0	1,3	2	5	0	11
Online: Ongepland overleg	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Online: Informeel contact met collega	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Online: Informeel contact met vriend(in), familie of kennis	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Algemeen bureauwerk	1,9	2,7	0,0	7,0	4	9	0	28	1,7	2,0	0,0	4,7	4	9	0	22
Ongestoord bureauwerk	0,0	0,2	0,0	0,5	0	2	0	5	1,7	1,9	0,3	5,3	1	1	0	3
Interactief bureauwerk	0,0	0,0	0,0	0,0	0	0	0	0	0,7	1,6	0,0	4,0	0	0	0	0
Gepland overleg	0,1	0,2	0,0	0,7	0	0	0	0	0,1	0,1	0,0	0,3	0	0	0	0
Ongepland overleg	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Lezen	0,0	0,1	0,0	0,3	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Telefoneren	0,2	0,4	0,0	1,0	38	86	0	277	0,8	1,2	0,0	2,7	233	435	0	1083

Archiveren en documentverzorging	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Informeel contact met collega	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Informeel contact met vriend(in), familie of kennis	0,1	0,1	0,0	0,3	2	5	0	16	0,1	0,3	0,0	0,8	4	9	0	22
Lunch pauze	0,7	0,5	0,0	1,3	274	373	0	1003	0,6	0,5	0,0	1,0	216	333	0	846
Koffie pauze	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,1	0,0	0,3	3	6	0	16
Pauzeren	0,2	0,3	0,0	0,8	30	47	0	152	0,1	0,2	0,0	0,5	22	41	0	103
(Voor)deur openen	-	-	-	-	-	-	-	-	0,1	0,2	0,0	0,3	10	22	0	55
Binnen rondje wandelen	-	-	-	-	-	-	-	-	0,0	0,0	0,0	0,0	0	0	0	0
Reizen	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Buiten rondje wandelen	0,3	0,4	0,0	1,3	676	1037	0	3005	0,4	0,4	0,0	1,0	914	784	0	1967
Buiten rondje wandelen tijdens vergadering	-	-	-	-	-	-	-	-	0,0	0,0	0,0	0,0	0	0	0	0
Buiten rondje fietsen, etc.	0,1	0,1	0,0	0,3	78	204	0	668	0,1	0,2	0,0	0,3	46	71	0	145
Andere reden, namelijk:	0,5	0,5	0,0	1,5	44	62	0	199	0,2	0,4	0,0	1,0	6	11	0	28
Unknown	3,8	2,0	1,0	7,0	104	82	0	252	3,9	0,8	3,0	5,0	118	67	21	197

17. Number of trips to and steps to each destination within and around the home work environment of employees working for Aestate and draaijer+partners

	Aestate								draaijer+partners							
	n = 11								n = 6							
	Frequency				Steps				Frequency				Steps			
Since October 2020	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum
Buiten, namelijk:	0,6	0,4	0,0	1,3	851	1081	0	3005	0,7	0,3	0,3	1,0	1102	619	145	1967
Werkkamer	3,5	4,1	0,0	9,7	42	98	0	315	4,5	4,4	0,0	11,0	190	446	0	1100
Keuken	3,4	1,8	1,3	7,5	217	115	48	433	2,8	1,6	0,3	5,0	254	193	49	611
Huiskamer	3,0	3,6	0,0	9,0	173	344	0	1163	1,9	2,5	0,3	7,0	105	120	0	337
WC	1,9	1,1	0,2	3,7	92	77	3	281	1,0	1,0	0,0	2,7	59	93	0	246
Badkamer	0,6	1,4	0,0	4,7	43	69	0	179	0,4	0,8	0,0	2,0	7,6	12	0	27
Slaapkamer	0,1	0,2	0,0	0,8	4	11	0	37	0,9	1,7	0,0	4,3	25	29	0	64
Kinderkamer	0,0	0,0	0,0	0,0	0	0	0	0	0,0	0,0	0,0	0,0	0	0	0	0
Tuinkamer/serre	0,0	0,1	0,0	0,3	1	2	0	6	0,0	0,0	0,0	0,0	0	0	0	0
Tuin/balkon	0,0	0,1	0,0	0,4	2	8	0	27	0,2	0,3	0,0	0,8	17	27	0	54
Zolder	-	-	-	-	-	-	-	-	0,1	0,2	0,0	0,5	5	12	0	30
Gang/hal	-	-	-	-	-	-	-	-	0,8	1,1	0,0	2,3	68	115	0	287
Andere binnenruimte, namelijk:	0,1	0,2	0,0	0,8	15	35	0	105	0,0	0,0	0,0	0,0	0	0	0	0
Unknown	2,1	1,3	0,0	4,3	152	251	0	888	3,3	1,0	1,5	4,5	118	67	21	197

18. Number of trips per reason of movement within and around the office building in Odijk, Utrecht and Groningen

	Odijk				Utrecht				Groningen			
	n = 14				n = 2				n = 1			
Before COVID-19 pandemic	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum
Jas ophangen/pakken	0,7	0,8	0	2	1,0	1,4	0	2	0,0	-	0	0
Spullen inpakken	0,6	0,9	0	3	0,0	0,0	0	0	0,0	-	0	0
Toiletteren	2,1	1,9	0	5	0,5	0,7	0	1	0,0	-	0	0
Drinken halen / Koffie/thee halen	4,2	2,2	1	8	2,5	0,7	2	3	5,0	-	5	5
Eten halen	0,2	0,4	0	1	0,0	0,0	0	0	0,0	-	0	0
Huishoudelijke activiteit	-	-	-	-	0,0	0,0	0	0	0,0	-	0	0
Installeren op werkplek	1,9	2,5	0	7	1,0	0	1	1	1,0	-	1	1
Online: Interactief bureauwerk	0,0	0,0	0	0	0,0	0,0	0	0	0,0	-	0	0
Online: Gepland overleg	1,4	1,3	0	4	0,0	0,0	0	0	0,0	-	0	0
Online: Ongepland overleg	0,0	0,0	0	0	0,0	0,0	0	0	0,0	-	0	0
Online: Informeel contact met collega	0,0	0,0	0	0	0,0	0,0	0	0	1,0	-	1	1
Online: Informeel contact met vriend(in), familie of kennis	0,0	0,0	0	0	0,0	0,0	0	0	0,0	-	0	0
Algemeen bureauwerk	2,9	3,8	0	12	1,5	2,1	0	3	1,0	-	1	1
Ongestoord bureauwerk	0,2	0,6	0	2	0,0	0,0	0	0	6,0	-	6	6
Interactief bureauwerk	0,0	0,0	0	0	2,0	2,8	0	4	0,0	-	0	0
Gepland overleg	1,4	1,4	0	4	0,0	0,0	0	0	1,0	-	1	1
Ongepland overleg	0,0	0,0	0	0	0,0	0,0	0	0	1,0	-	1	1
Lezen	0,0	0,0	0	0	0,0	0,0	0	0	0,0	-	0	0
Telefoneren	0,1	0,3	0	1	0,0	0,0	0	0	1,0	-	1	1
Archiveren en documentverzorging	0,0	0,0	0	0	0,0	0,0	0	0	1,0	-	1	1

Informeel contact met collega	0,5	1,2	0	4	0,0	0,0	0	0	0,0	-	0	0
Informeel contact met vriend(in), familie of kennis	0,0	0,0	0	0	0,0	0,0	0	0	0,0	-	0	0
Lunch pauze	1,1	1,5	0	6	1,0	0,0	1	1	1,0	-	1	1
Koffie pauze	0,1	0,3	0	1	0,0	0,0	0	0	0,0	-	0	0
Pauzeren	0,6	1,3	0	4	0,0	0,0	0	0	0,0	-	0	0
(Voor)deur openen	-	-	-	-	0,0	0,0	0	0	0,0	-	0	0
Binnen rondje wandelen	-	-	-	-	0,0	0,0	0	0	0,0	-	0	0
Reizen	0,3	0,5	0	1	1,0	0,0	1	1	0,0	-	0	0
Buiten rondje wandelen	0,0	0,0	0	0	0,0	0,0	0	0	0,0	-	0	0
Buiten rondje wandelen tijdens vergadering	-	-	-	-	0,0	0,0	0	0	0,0	-	0	0
Buiten rondje fietsen, etc.	0,0	0,0	0	0	0,0	0,0	0	0	0,0	-	0	0
Andere reden, namelijk:	0,1	0,3	0	1	2,5	3,5	0	5	0,0	-	0	0
Unknown	2,7	2,6	0	9	0,5	0,7	0	1	1,0	-	1	1

19. Number of trips to each destination within and around the office in Odijk

	Odijk			
	n = 14			
Before COVID-19 pandemic	Mean	Std. Deviation	Minimum	Maximum
Werkplek A	1,3	3,1	0	10
Werkplek B	3,6	4,1	0	11
Werkplek C	2,1	4,3	0	14
Werkplek D	0,2	0,4	0	1
Werkplek E	0,2	0,8	0	3
Vergaderruimte A	1,3	1,1	0	4
Vergaderruimte B	0,4	0,5	0	1
Vergaderruimte C	0,6	0,7	0	2
Vergaderruimte D	1,2	1,6	0	6
Informeel A	0,0	0,0	0	0
Informeel B	0,0	0,0	0	0
Wc	2,0	2,0	0	6
Kantine	5,0	2,2	2	9
Berging	0,1	0,3	0	1
Trap	0,0	0,0	0	0
Hal A	0,0	0,0	0	0
Hal B	0,0	0,0	0	0
Hal C	0,1	0,3	0	1
Hal D	1,3	0,9	0	2
Hal E	0,3	0,8	0	3
Hal F	0,0	0,0	0	0
Hal G	0,0	0,0	0	0
Hal H	0,0	0,0	0	0
Hal I	0,0	0,0	0	0
Hal J	0,0	0,0	0	0
Hal K	0,0	0,0	0	0
Hal L	0,0	0,0	0	0
Hal M	0,0	0,0	0	0
Andere binnenruimte, namelijk:	0,0	0,0	0	0
Buiten, namelijk:	1,3	0,5	1	2

20. Number of trips to each destination within and around the office in Utrecht

	Utrecht			
	n = 2			
Before COVID-19 pandemic	Mean	Std. Deviation	Minimum	Maximum
Buiten, namelijk:	1,0	0,0	1	1
Centrale hal (begane grond)	1,0	1,4	0	2
Werkplek A	0,0	0,0	0	0
Werkplek B	0,0	0,0	0	0
Werkplek C	2,0	2,8	0	4
Werkplek D	0,0	0,0	0	0
Werkplek E	0,0	0,0	0	0
Werkplek F	2,5	3,5	0	5
Vergaderruimte A	0,5	0,7	0	1
Vergaderruimte B	0,0	0,0	0	0
Vergaderruimte C (6e verdieping)	0,0	0,0	0	0
Vergaderruimte D (6e verdieping)	0,0	0,0	0	0
Informeel A	0,0	0,0	0	0
Informeel B	0,0	0,0	0	0
Informeel C	1,0	0,0	1	1
Informeel D	0,0	0,0	0	0
Wc A	0,0	0,0	0	0
Wc B	0,5	0,7	0	1
Koffiepunt	3,5	2,1	2	5
Repro	0,0	0,0	0	0
Opslag	0,0	0,0	0	0
Trap A	0,0	0,0	0	0
Trap B	0,0	0,0	0	0
Lift	0,0	0,0	0	0
Hal A	0,0	0,0	0	0
Hal B	0,0	0,0	0	0
Hal C	0,0	0,0	0	0
Hal D	0,0	0,0	0	0
Hal E	0,0	0,0	0	0
Hal F	0,0	0,0	0	0
Hal G	0,0	0,0	0	0
Hal H	0,0	0,0	0	0
Hal I	0,0	0,0	0	0
Hal J	0,0	0,0	0	0
Hal K	0,0	0,0	0	0
Hal L	0,0	0,0	0	0
Hal M	0,0	0,0	0	0
Hal N	0,0	0,0	0	0

Hal O	0,0	0,0	0	0
Hal P	1,5	2,1	0	3
Hal Q	0,0	0,0	0	0
Hal R	0,0	0,0	0	0
Andere binnenruimte, namelijk:	0,0	0,0	0	0
Unknown	0,0	0,0	0	0

21. Number of trips to each destination within and around the office in Groningen

	Groningen			
	n = 1			
Before COVID-19 pandemic	Mean	Std. Deviation	Minimum	Maximum
Buiten, namelijk:	1,0	-	1	1
Werkplek A	9,0	-	9	9
Werkplek B	0,0	-	0	0
Werkplek C	0,0	-	0	0
Werkplek D	0,0	-	0	0
Werkplek E	0,0	-	0	0
Werkplek F	0,0	-	0	0
Werkplek G	0,0	-	0	0
Werkplek H	0,0	-	0	0
Vergaderruimte A	0,0	-	0	0
Vergaderruimte B	2,0	-	2	2
Vergaderruimte C	0,0	-	0	0
Informeel A	0,0	-	0	0
Informeel B	0,0	-	0	0
Informeel C	0,0	-	0	0
Informeel D	1,0	-	1	1
Wc A	0,0	-	0	0
Wc B	0,0	-	0	0
Wc C	0,0	-	0	0
Koffiepunt A	5,0	-	5	5
Koffiepunt B	0,0	-	0	0
Keuken A	0,0	-	0	0
Keuken B	0,0	-	0	0
Repro	1,0	-	1	1
Trap	0,0	-	0	0
Lift	0,0	-	0	0
Hal A	0,0	-	0	0
Hal B	0,0	-	0	0
Hal C	0,0	-	0	0
Hal D	0,0	-	0	0
Hal E	0,0	-	0	0
Hal F	0,0	-	0	0
Hal G	0,0	-	0	0
Hal H	0,0	-	0	0
Hal I	0,0	-	0	0
Hal J	1,0	-	0	0
Hal K	0,0	-	0	0
Hal L	0,0	-	0	0

Hal M	0,0	-	0	0
Hal N	0,0	-	0	0
Hal O	0,0	-	0	0
Hal P	0,0	-	0	0
Hal Q	0,0	-	0	0
Hal R	0,0	-	0	0
Hal S	0,0	-	0	0
Andere binnenruimte, namelijk:	0,0	-	0	0

22. Steps during working hours at home per dwelling type

Steps during working hours at home		Aestate	draaijer+partners
Vrijstaande woning	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0
2-onder-1-kapwoning	Mean	Privacy	-
	Std. Deviation	Privacy	-
	Minimum	Privacy	-
	Maximum	Privacy	-
	n	1	0
Tussenwoning/ hoekwoning	Mean	2153	1846
	Std. Deviation	1608	587
	Minimum	656	1249
	Maximum	5012	2826
	n	6	5
Appartement	Mean	1608	Privacy
	Std. Deviation	1159	Privacy
	Minimum	617	Privacy
	Maximum	3767	Privacy
	n	6	1

23. Correlation between steps during working hours at home and dwelling surface

Steps during working hours at home		Aestate	draaijer+partners
Dwelling surface	Pearson Correlation	-0,107	0,129
	Sig. (2-tailed)	0,692	0,808
	n	16	6

24. Steps during working hours at home per living environment

Steps during working hours at home		Aestate	draaijer+partners
Centrum stedelijk	Mean	1648	Privacy
	Std. Deviation	1474	Privacy
	Minimum	659	Privacy
	Maximum	4216	Privacy
	n	5	1
Stedelijk buiten centrum	Mean	2070	1867
	Std. Deviation	1533	676
	Minimum	617	1249
	Maximum	5012	2826
	n	8	4
Groen stedelijk	Mean	Privacy	Privacy
	Std. Deviation	Privacy	Privacy
	Minimum	Privacy	Privacy
	Maximum	Privacy	Privacy
	n	1	1
Centrum dorps	Mean	Privacy	-
	Std. Deviation	Privacy	-
	Minimum	Privacy	-
	Maximum	Privacy	-
	n	2 (of 3)	0
Landelijk wonen	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0

25. Steps during working hours at home per months living in the dwelling and its environment

Steps during working hours at home		Aestate	draaijer+partners
Up to and including 12 months	Mean	1499	Privacy
	Std. Deviation	349	Privacy
	Minimum	1258	Privacy
	Maximum	1899	Privacy
	n	3	1
More than 12 months	Mean	1948	1846
	Std. Deviation	1531	587
	Minimum	617	1249
	Maximum	5012	2826
	n	13	5

26. Minutes walking during working hours at the office per gender

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
Male	Mean	24,1	Privacy	Privacy
	Std. Deviation	10,2	Privacy	Privacy
	Minimum	10	Privacy	Privacy
	Maximum	45	Privacy	Privacy
	n	11	2	1
Female	Mean	22,5	23,0	26,3
	Std. Deviation	8,0	20,7	20,7
	Minimum	15	4	4
	Maximum	30	45	45
	n	8	3	3

27. Minutes walking during working hours at the office per age category

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
18 – 20	Mean	-	-	-
	Std. Deviation	-	-	-
	Minimum	-	-	-
	Maximum	-	-	-
	n	0	0	0
21 – 30	Mean	22,1	Privacy	Privacy
	Std. Deviation	8,4	Privacy	Privacy
	Minimum	10	Privacy	Privacy
	Maximum	30	Privacy	Privacy
	n	12	1	2
31 - 40	Mean	20,0	Privacy	Privacy
	Std. Deviation	5,0	Privacy	Privacy
	Minimum	15	Privacy	Privacy
	Maximum	25	Privacy	Privacy
	n	3	2	1
41 – 50	Mean	Privacy	-	-
	Std. Deviation	Privacy	-	-
	Minimum	Privacy	-	-
	Maximum	Privacy	-	-
	n	2	0	0
51 – 60	Mean	Privacy	Privacy	Privacy
	Std. Deviation	Privacy	Privacy	Privacy
	Minimum	Privacy	Privacy	Privacy
	Maximum	Privacy	Privacy	Privacy
	n	1	2	1
61 – 64	Mean	Privacy	-	-
	Std. Deviation	Privacy	-	-
	Minimum	Privacy	-	-
	Maximum	Privacy	-	-
	n	1	0	0

28. Minutes walking during working hours at the office per education level

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
Lager onderwijs	Mean	-	-	-
	Std. Deviation	-	-	-
	Minimum	-	-	-
	Maximum	-	-	-
	n	0	0	0
Middelbaar onderwijs	Mean	-	-	-
	Std. Deviation	-	-	-
	Minimum	-	-	-
	Maximum	-	-	-
	n	0	0	0
MBO	Mean	15,0	-	-
	Std. Deviation	0,0	-	-
	Minimum	15	-	-
	Maximum	15	-	-
	n	2 / privacy	0	0
HBO	Mean	19,3	30,0	45,0
	Std. Deviation	7,9	15,0	15,0
	Minimum	10	15	30
	Maximum	30	45	60
	n	7	3	3
WO	Mean	28,0	Privacy	Privacy
	Std. Deviation	8,6	Privacy	Privacy
	Minimum	15	Privacy	Privacy
	Maximum	45	Privacy	Privacy
	n	10	1	1

29. Correlation between minutes walking during working hours at the office and BMI

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
BMI	Pearson Correlation	0,126	0,475	0,728
	Sig. (2-tailed)	0,620	0,419	0,272
	n	18	5	4

30. Minutes walking during working hours at the office per movement disability

Minutes walking during working hours at the office		Odijk					Utrecht					Groningen				
		Mean	Std. Deviation	Minimum	Maximum	n	Mean	Std. Deviation	Minimum	Maximum	n	Mean	Std. Deviation	Minimum	Maximum	n
Ik heb/had een aandoening die mijn dagelijkse beweging beperkt(e)	Strongly disagree	24,7	8,7	15	45	17	27,5	13,2	15	45	4	45,0	15,0	30	60	3
	Disagree	Privacy	Privacy	Privacy	Privacy	1	Privacy	Privacy	Privacy	Privacy	1	Privacy	Privacy	Privacy	Privacy	1
	Neither agree nor disagree	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0
	Agree	Privacy	Privacy	Privacy	Privacy	1	-	-	-	-	0	-	-	-	-	0
	Strongly agree	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0

31. Minutes walking during working hours at the office per statement

Minutes walking during working hours at the office		Odijk					Utrecht					Groningen				
		Mean	Std. Deviation	Minimum	Maximum	n	Mean	Std. Deviation	Minimum	Maximum	n	Mean	Std. Deviation	Minimum	Maximum	n
De organisatie geeft genoeg aandacht aan gezondheid en vitaliteit	Strongly disagree	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0
	Disagree	25,0	7,1	20	30	2	31,7	12,6	20	45	3	45,0	15,0	30	60	3
	Neither agree nor disagree	24,0	8,2	15	30	5	4,0	-	4	4	1	4,0	-	4	4	1
	Agree	23,9	11,1	10	45	9	15,0	-	15	15	1	-	-	-	-	0
	Strongly agree	20,0	8,7	15	30	3	-	-	-	-	0	-	-	-	-	0
De leidinggevenden ondersteunen medewerkers op het gebied van gezondheid en vitaliteit.	Strongly disagree	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0
	Disagree	26,7	5,8	20	30	3	32,5	17,7	20	45	2	45,0	-	45	45	1
	Neither agree nor disagree	24,2	7,4	15	30	6	17,0	18,4	4	30	2	31,3	28,0	4	60	3
	Agree	22,9	12,5	10	45	7	15,0	0	15	15	1	-	-	-	-	0
	Strongly agree	20,0	8,7	15	30	3	-	-	-	-	0	-	-	-	-	0
Pauze wordt aangemoedigd op het werk door de organisatie	Strongly disagree	20,0	-	20	20	1	-	-	-	-	0	-	-	-	-	0
	Disagree	15,0	-	15	15	1	-	-	-	-	0	-	-	-	-	0
	Neither agree nor disagree	30,0	0,0	30	30	3	-	-	-	-	0	-	-	-	-	0
	Agree	23,0	10,9	10	45	10	23,0	20,7	4	45	3	26,3	20,7	4	45	3
	Strongly agree	22,5	8,7	15	30	4	22,5	10,6	15	30	2	60,0	-	60	60	1

32. Correlation between minutes walking during working hours at the office and activity (profile)

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
Algemeen bureauwerk (%)	Pearson Correlation	-0,386	0,154	0,928
	Sig. (2-tailed)	0,114	0,805	0,072
	n	18	5	4
Ongestoord bureauwerk (%)	Pearson Correlation	-0,304	0,025	-0,266
	Sig. (2-tailed)	0,220	0,969	0,734
	n	18	5	4
Interactief bureauwerk (%)	Pearson Correlation	0,111	-0,539	-0,844
	Sig. (2-tailed)	0,662	0,349	0,156
	n	18	5	4
Gepland overleg (%)	Pearson Correlation	0,494*	0,151	-0,108
	Sig. (2-tailed)	0,037	0,808	0,892
	n	18	5	4
Ongepland overleg (%)	Pearson Correlation	-0,082	0,397	0,785
	Sig. (2-tailed)	0,746	0,508	0,215
	n	18	5	4
Telefoneren (%)	Pearson Correlation	0,059	-0,230	-0,912
	Sig. (2-tailed)	0,816	0,709	0,088
	n	18	5	4
Archiveren en documentverzorging (%)	Pearson Correlation	-0,110	-0,468	-0,204
	Sig. (2-tailed)	0,664	0,427	0,796
	n	18	5	4
Lezen (%)	Pearson Correlation	-0,118	0,397	0,754
	Sig. (2-tailed)	0,640	0,508	0,246
	n	18	5	4
Overige activiteiten (%)	Pearson Correlation	0,015	0,003	0,705
	Sig. (2-tailed)	0,951	0,996	0,295
	n	18	5	4

33. Minutes walking during working hours at the office per workplace change

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
Nooit	Mean	30,0	16,3	4,0
	Std. Deviation	-	13,1	-
	Minimum	30	4	4
	Maximum	30	30	4
	n	1	3	1
Minder dan één keer per week	Mean	15,0	-	-
	Std. Deviation	0,0	-	-
	Minimum	15	-	-
	Maximum	15	-	-
	n	2	0	0
1-2 keer per week	Mean	12,5	20,0	60,0
	Std. Deviation	3,5	-	-
	Minimum	10	20	60
	Maximum	15	20	60
	n	2	1	1
3-4 keer per week	Mean	30,0	-	-
	Std. Deviation	-	-	-
	Minimum	30	-	-
	Maximum	30	-	-
	n	1	0	0
Bij de start van elke dag	Mean	21,0	-	-
	Std. Deviation	8,2	-	-
	Minimum	15	-	-
	Maximum	30	-	-
	n	5	0	0
Eenmaal tijdens de dag	Mean	22,5	45,0	45,0
	Std. Deviation	10,6	-	-
	Minimum	15	45	45
	Maximum	30	45	45
	n	2	1	1
Meerdere malen tijdens de dag	Mean	30,0	-	30,0
	Std. Deviation	8,4	-	-
	Minimum	20	-	30
	Maximum	45	-	30
	n	6	0	1

34. Correlation between minutes walking during working hours at the office and days a week with 30 minutes or more physical activity

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
Days a week with 30 minutes or more physical activity	Pearson Correlation	-0,485*	0,672	-0,017
	Sig. (2-tailed)	0,035	0,214	0,983
	n	19	5	4

35. Correlation between minutes walking during working hours at the office and minutes of physical activity during commuting

Minutes walking during working hours at the office		Odijk	Utrecht	Groningen
minutes of physical activity during commuting	Pearson Correlation	0,125	-0,073	0,286
	Sig. (2-tailed)	0,609	0,907	0,714
	n	19	5	4

36. Steps during working hours at home per gender

Steps during working hours at home		Aestate	draaijer+partners
Male	Mean	1936	1898
	Std. Deviation	1621	824
	Minimum	617	1249
	Maximum	5012	2826
	n	9	3
Female	Mean	1770	2002
	Std. Deviation	1133	406
	Minimum	740	1761
	Maximum	4216	2471
	n	7	3

37. Steps during working hours at home per age category

Steps during working hours at home		Aestate	draaijer+partners
18 – 20	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0
21 – 30	Mean	1876	1864
	Std. Deviation	1268	676
	Minimum	659	1249
	Maximum	4216	2826
	n	9	4
31 - 40	Mean	1439	-
	Std. Deviation	1390	-
	Minimum	617	-
	Maximum	3043	-
	n	3	0
41 – 50	Mean	Privacy	-
	Std. Deviation	Privacy	-
	Minimum	Privacy	-
	Maximum	Privacy	-
	n	2	0
51 – 60	Mean	Privacy	Privacy
	Std. Deviation	Privacy	Privacy
	Minimum	Privacy	Privacy
	Maximum	Privacy	Privacy
	n	1	2
61 – 64	Mean	Privacy	-
	Std. Deviation	Privacy	-
	Minimum	Privacy	-
	Maximum	Privacy	-
	n	1	0

38. Steps during working hours at home per education level

Steps during working hours at home		Aestate	Draaijer+partners
Lager onderwijs	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0
Middelbaar onderwijs	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0
MBO	Mean	3280	-
	Std. Deviation	2450	-
	Minimum	1548	-
	Maximum	5012	-
	n	2	0
HBO	Mean	1183	1864
	Std. Deviation	471	676
	Minimum	656	1249
	Maximum	1899	2826
	n	8	4
WO	Mean	2299	Privacy
	Std. Deviation	1577	Privacy
	Minimum	617	Privacy
	Maximum	4216	Privacy
	n	6	1

39. Correlation between steps during working hours at home and BMI

Steps during working hours at home		Aestate	draaijer+partners
BMI	Pearson Correlation	-0,194	0,114
	Sig. (2-tailed)	0,488	0,830
	n	15	6

40. Steps during working hours at home per movement disability

Steps during working hours at home		Odijk					Groningen				
		Mean	Std. Deviation	Minimum	Maximum	n	Mean	Std. Deviation	Minimum	Maximum	n
Ik heb/had een aandoening die mijn dagelijkse beweging beperkt(e)	Strongly disagree	1716	1279	617	4216	12	1985	646	1249	2826	5
	Disagree	Privacy	Privacy	Privacy	Privacy	1	-	-	-	-	0
	Neither agree nor disagree	Privacy	Privacy	Privacy	Privacy	1	-	-	-	-	0
	Agree	Privacy	Privacy	Privacy	Privacy	2	Privacy	Privacy	Privacy	Privacy	1
	Strongly agree	-	-	-	-	0	-	-	-	-	0

41. Steps during working hours at home per statement

Steps during working hours at home		Aestate					Draaijer+partners				
		Mean	Std. Deviation	Minimum	Maximum	n	Mean	Std. Deviation	Minimum	Maximum	n
De organisatie geeft genoeg aandacht aan gezondheid en vitaliteit	Strongly disagree	-	-	-	-	0	-	-	-	-	0
	Disagree	656	-	656	656	1	2648	251	2471	2826	2
	Neither agree nor disagree	2044	1905	659	4216	3	1773	-	1773	1773	1
	Agree	2094	1508	617	5012	9	1690	100	1620	1761	2
	Strongly agree	1396	594	740	1899	3	1249	-	1249	1249	1
De leidinggevenden ondersteunen medewerkers op het gebied van gezondheid en vitaliteit.	Strongly disagree	-	-	-	-	0	-	-	-	-	0
	Disagree	657	1980	656	659	2	2116	502	1761	2471	2
	Neither agree nor disagree	1658	1017	617	3043	4	2299	744	1773	2826	2
	Agree	2526	1743	698	5012	7	1435	262	1249	1620	2
	Strongly agree	1396	594	740	1899	3	-	-	-	-	0
Pauze wordt aangemoedigd op het werk door de organisatie	Strongly disagree	656	-	656	656	1	-	-	-	-	0
	Disagree	1341	-	1341	1341	1	-	-	-	-	0
	Neither agree nor disagree	-	-	-	-	0	1761	-	1761	1761	1
	Agree	2346	1555	617	5012	10	1778	511	1s249	2471	4
	Strongly agree	1089	455	659	1548	4	2826	-	2826	2826	1

42. Correlation between steps during working hours at home and activity (profile)

Steps during working hours at home		Aestate	Draaijer+partners
Algemeen bureauwerk (%)	Pearson Correlation	0,302	0,116
	Sig. (2-tailed)	0,256	0,827
	n	16	6
Ongestoord bureauwerk (%)	Pearson Correlation	0,205	-0,414
	Sig. (2-tailed)	0,446	0,414
	n	16	6
Interactief bureauwerk (%)	Pearson Correlation	-0,084	-0,065
	Sig. (2-tailed)	0,757	0,903
	n	16	6
Gepland overleg (%)	Pearson Correlation	-0,228	-0,301
	Sig. (2-tailed)	0,395	0,562
	n	16	6
Ongepland overleg (%)	Pearson Correlation	-0,046	0,588
	Sig. (2-tailed)	0,864	0,220
	n	16	6
Telefoneren (%)	Pearson Correlation	-0,293	0,176
	Sig. (2-tailed)	0,271	0,739
	n	16	6
Archiveren en documentverzorging (%)	Pearson Correlation	-0,251	0,656
	Sig. (2-tailed)	0,349	0,158
	n	16	6
Lezen (%)	Pearson Correlation	0,024	0,219
	Sig. (2-tailed)	0,930	0,677
	n	16	6
Overige activiteiten (%)	Pearson Correlation	-0,081	0,731
	Sig. (2-tailed)	0,766	0,099
	n	16	6

43. Steps during working hours at home per workplace change

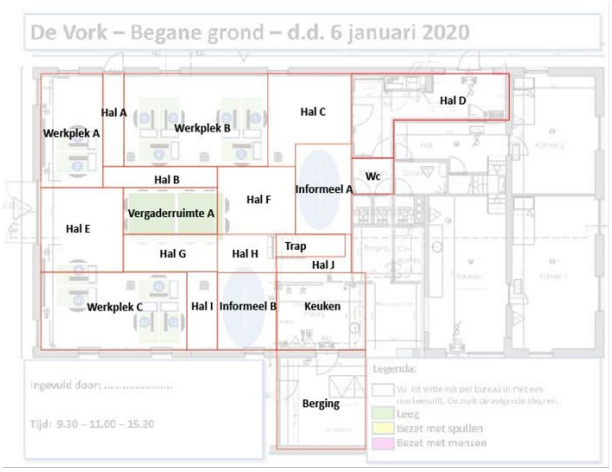
Steps during working hours at home		Aestate	Draaijer+partners
Nooit	Mean	1532	1902
	Std. Deviation	951	662
	Minimum	698	1249
	Maximum	3043	2826
	n	5	4
Minder dan één keer per week	Mean	2329	2046
	Std. Deviation	1279	602
	Minimum	1321	1620
	Maximum	3767	2471
	n	3	2
1-2 keer per week	Mean	1896	-
	Std. Deviation	1722	-
	Minimum	617	-
	Maximum	5012	-
	n	8	0
3-4 keer per week	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0
Bij de start van elke dag	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0
Eenmaal tijdens de dag	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0
Meerdere malen tijdens de dag	Mean	-	-
	Std. Deviation	-	-
	Minimum	-	-
	Maximum	-	-
	n	0	0

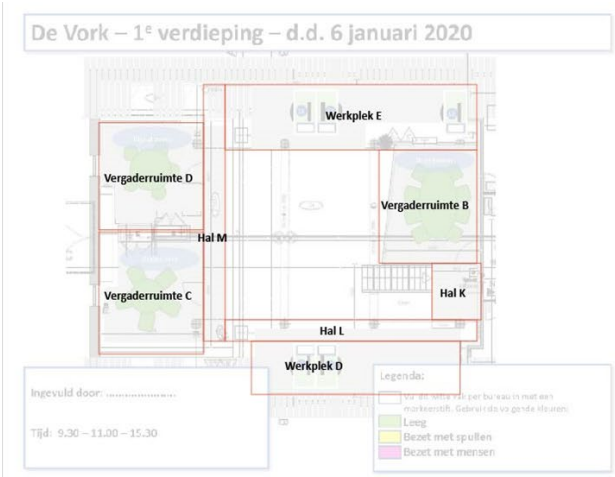
44. Steps during working hours at home and days a week with 30 minutes or more physical activity

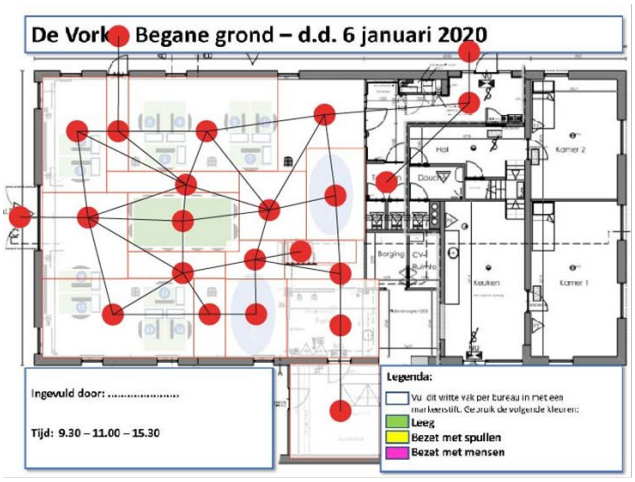
Steps during working hours at home		Aestate	Draaijer+partners
Days a week with 30 minutes or more physical activity	Pearson Correlation	-0,202	-0,220
	Sig. (2-tailed)	0,453	0,676
	n	16	6

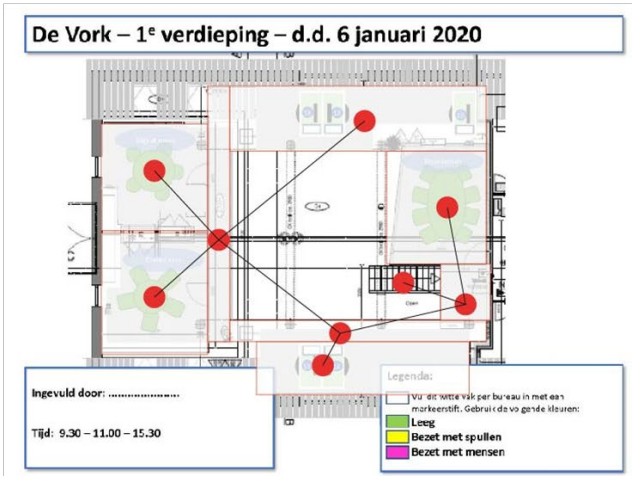
Appendix D – Spatial graph results

1. Odijk



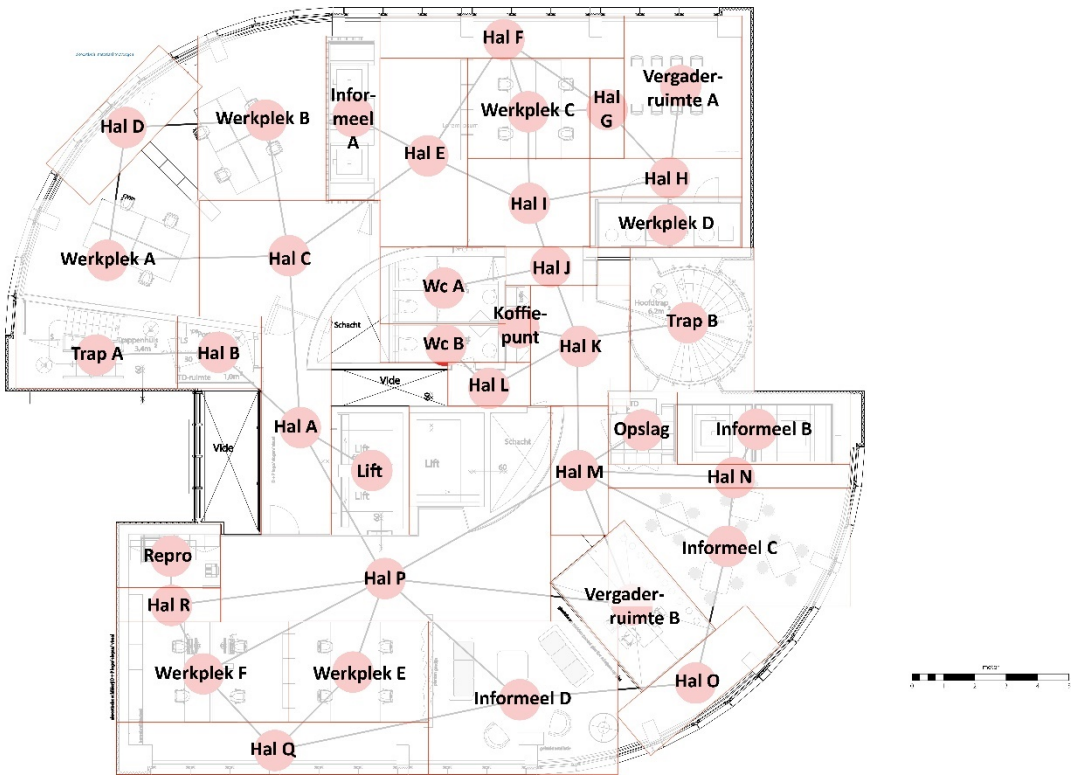






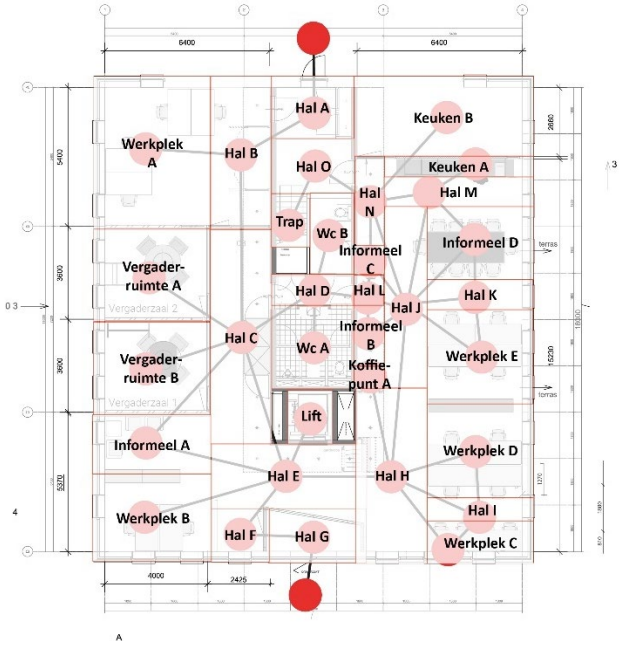
	Odijk																		
	Load	Degree	Distance															Eccentricity	Closeness
			Workplace A	Workplace B	Workplace C	Workplace D	Workplace E	Meeting room A	Meeting room B	Meeting room C	Meeting room D	Informal A	Informal B	Toilet	Kitchen	Storage	STaircase		
Workplace A	2	3		2	2	7	8	2	6	8	8	3	4	5	5	6	4	8	5,0
Workplace B	6	4	2		3	6	7	2	5	7	7	2	3	3	4	5	3	7	4,2
Workplace C	5	3	2	3		6	7	2	5	7	7	4	2	6	4	5	3	7	4,5
Workplace D	2	1	7	6	6		3	6	3	3	3	6	5	8	6	7	3	8	5,1
Workplace E	3	1	8	7	7	3		7	4	2	2	7	6	9	7	8	4	9	5,8
Meeting room A	12	4	2	2	2	6	7		5	7	7	2	3	4	4	5	3	7	4,2
Meeting room B	8	1	6	5	5	3	4	5		4	4	5	4	7	5	6	2	7	4,6
Meeting room C	5	1	8	7	7	3	2	7	4		2	7	6	9	7	8	4	9	5,8
Meeting room D	5	1	8	7	7	3	2	7	4	2		7	6	9	7	8	4	9	5,8
Informal A		3	3	2	4	6	7	2	5	7	7		3	3	4	5	3	7	4,4
Informal B		2	4	3	2	5	6	3	4	6	6	3		5	3	4	2	6	4,0
Toilet	2	1	5	3	6	8	9	4	7	9	9	3	5		5	6	6	9	6,1
Kitchen		2	5	4	4	6	7	4	5	7	7	4	3	5		1	3	7	4,6
Storage		2	6	5	5	7	8	5	6	8	8	5	4	6	1		4	8	5,6
Staircase		2	4	3	3	3	4	3	2	4	4	3	2	6	3	4		6	3,4

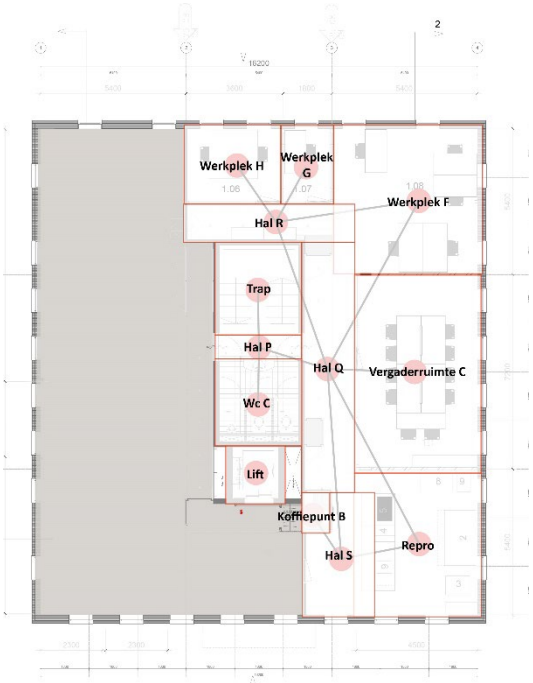
2. Utrecht


Hal F
Vergader-
ruimte A
Infor-
meel
A
Hal D
Werkplek B
Werkplek C
Hal
G
Hal E
Hal H
Hal I
Werkplek D
Werkplek A
Hal C
Hal J
Wc A
Koffie-
punt
Trap B
Trap A
Hal B
Wc B
Hal K
Hal L
Hal A
Opslag
Informeel B
Lift
Hal M
Hal N
Informeel C
Repro
Hal P
Hal R
Vergader-
ruimte B
Werkplek F
Werkplek E
Hal O
Informeel D
Hal Q

	Utrecht																											
				Distance																								
	Code	Load	Degree	Werkplek A	Werkplek B	Werkplek C	Werkplek D	Werkplek E	Werkplek F	Vergaderruimte A	Vergaderruimte B	Vergaderruimte C	Vergaderruimte D	Informeel A	Informeel B	Informeel C	Informeel D	Wc A	Wc B	Koffiepunt	Repro	Opslag	Trap A	Trap B	Lift	Eccentricity	Closeness
Workplace A	WA4	4	2		2	4	5	4	4	5	4	6	6	3	6	5	4	5	7	6	5	5	4	6	3	7	4,7
Workplace B	WB4	4	2	2		4	5	4	4	5	4	6	6	3	6	5	4	5	7	6	5	5	4	6	3	7	4,7
Workplace C	WC4	4	3	4	4		3	6	6	3	5	8	8	3	6	5	6	3	5	4	7	5	6	4	5	8	5,0
Workplace D	WD4	4	1	5	5	3		7	7	2	6	9	9	4	7	6	7	4	6	5	8	6	7	5	6	9	5,9
Workplace E	WE4	4	2	4	4	6	7		2	7	2	6	6	5	4	3	2	5	5	4	3	3	4	4	3	7	4,2
Workplace F	WF4	4	3	4	4	6	7	2		7	2	6	6	5	4	3	2	5	5	4	2	3	4	4	3	7	4,2
Meeting room A	MA8	8	1	5	5	3	2	7	7		6	9	9	4	7	6	7	4	6	5	8	6	7	5	6	9	5,9
Meeting room B	MB4	4	2	4	4	5	6	2	2	6		6	6	5	3	2	2	4	4	3	3	2	4	3	3	6	3,8
Meeting room C	MC	?	1	6	6	8	9	6	6	9	6		2	7	8	7	6	9	9	8	7	7	4	?	3	9	6,7
Meeting room D	MD	?	1	6	6	8	9	6	6	9	6	2		7	8	7	6	9	9	8	7	7	4	?	3	9	6,7
Informal A	IA8	8	1	3	3	3	4	5	5	4	5	7	7		7	6	5	4	6	5	6	6	5	5	4	7	5,0
Informal B	IB8	8	1	6	6	6	7	4	4	7	3	8	8	7		2	4	5	5	4	5	3	6	4	5	8	5,2
Informal C	IC16	16	3	5	5	5	6	3	3	6	2	7	7	6	2		2	4	4	3	4	2	5	3	4	7	4,2
Informal D	ID8	8	3	4	4	6	7	2	2	7	2	6	6	5	4	2		5	5	4	3	3	4	4	3	7	4,2
Toilet A	TA2	2	1	5	5	3	4	5	5	4	4	9	9	4	5	4	5		4	3	6	4	7	3	6	9	5,0
Toilet B	TB1	1	1	7	7	5	6	5	5	6	4	9	9	6	5	4	5	4		3	6	4	7	3	6	9	5,5
Coffee point	C	-	1	6	6	4	5	4	4	5	3	8	8	5	4	3	4	3	3		5	3	6	2	5	8	4,6
Repro	R	-	1	5	5	7	8	3	2	8	3	7	7	6	5	4	3	6	6	5		4	5	5	4	8	5,1
Storage	S	-	1	5	5	5	6	3	3	6	2	7	7	6	3	2	3	4	4	3	4		5	3	4	7	4,3
Staircase A	SCA	-	1	4	4	6	7	4	4	7	4	4	4	5	6	5	4	7	7	6	5	5		6	3	7	5,1
Staircase B	SCB	-	1	6	6	4	5	4	4	5	3	?	?	5	4	3	4	3	3	2	5	3	6		5	6	4,2
Lift	L	-	1	3	3	5	6	3	3	6	3	3	3	4	5	4	3	6	6	5	4	4	3	5		6	4,1

3. Groningen


Hal A
Keuken B
Werkplek A
Hal B
Hal O
Keuken A
Hal N
Hal M
Trap
Wc B
Informeel C
Informeel D
Vergader-ruimte A
Hal D
Hal L
Hal J
Hal K
Hal C
Wc A
Informeel B
Koffie-punt A
Werkplek E
Vergader-ruimte B
Lift
Informeel A
Werkplek D
Hal E
Hal H
Hal I
Werkplek B
Hal F
Hal G
Werkplek C


Werkplek H
Werkplek G
Werkplek F
Hal R
Trap
Hal P
Hal Q
Vergaderruimte C
Wc C
Lift
Koffiepunt B
Hal S
Repro

	Groningen																																
				Distance																													
	Code	Load	Degree	Workplace A	Workplace B	Workplace C	Workplace D	Workplace E	Workplace F	Workplace G	Workplace H	Meeting room A	Meeting room B	Meeting room C	Informal A	Informal B	Informal C	Informal D	Toilet A	Toilet B	Toilet C	Coffee point A	Coffee point B	Kitchen A	Kitchen B	Repro	Staircase	Lift	Eccentricity	Closeness
Workplace A	WA4	4	1		4	5	5	6	11	12	12	3	3	11	3	5	5	6	4	4	10	5	12	7	7	11	8	5	12	6,8
Workplace B	WB2	2	1	4		3	3	4	9	10	10	3	3	9	2	4	4	4	4	4	8	3	10	5	5	9	6	2	10	5,3
Workplace C	WC4	4	2	5	3		2	3	8	9	9	4	4	8	3	3	3	3	5	5	7	2	9	4	4	8	5	3	9	5,0
Workplace D	WD4	4	2	5	3	2		3	8	9	9	4	4	8	3	3	3	3	5	5	7	2	9	4	4	8	5	3	9	5,0
Workplace E	WE4	4	2	6	4	3	3		7	8	8	5	5	7	4	2	2	2	4	4	6	3	8	3	3	7	4	4	8	4,7
Workplace F	WF5	5	2	11	9	8	8	7		2	2	10	10	2	9	7	6	7	9	9	3	8	3	7	6	2	3	?	11	6,4
Workplace G	WG1	1	1	12	10	9	9	8	2		2	11	11	3	10	8	7	8	10	10	4	9	4	8	7	3	4	?	12	7,3
Workplace H	WH2	2	1	12	10	9	9	8	2	2		11	11	3	10	8	7	8	10	10	4	9	4	8	7	3	4	?	12	7,3
Meeting room A	MA4	4	1	3	3	4	4	5	10	11	11		2	10	2	4	4	5	3	3	9	4	11	6	6	10	7	3	11	5,8
Meeting room B	MB4	4	1	3	3	4	4	5	10	11	11	2		10	2	4	4	5	3	3	9	4	11	6	6	10	7	3	11	5,8
Meeting room C	MC10	10	1	11	9	8	8	7	2	3	3	10	10		9	7	6	7	9	9	3	8	3	7	6	2	3	?	11	6,5
Informal A	IA3	3	2	3	2	3	3	4	9	10	10	2	2	9		4	4	4	3	3	8	3	10	5	5	9	6	2	10	5,1
Informal B	IB2	2	2	5	4	3	3	2	7	8	8	4	4	7	4		2	2	3	3	6	3	8	3	3	7	4	4	8	4,5
Informal C	IC2	2	3	5	4	3	3	2	6	7	7	4	4	6	4	2		2	3	3	5	3	7	3	2	6	3	4	7	4,1
Informal D	ID10	10	3	6	4	3	3	2	7	8	8	5	5	7	4	2	2		4	4	6	3	8	2	3	7	4	4	8	4,6

Toilet A	TA3	3	1	4	4	5	5	4	9	10	10	3	3	9	3	3	3	4		2	8	5	10	5	5	9	6	4	10	5,5
Toilet B	TB1	1	1	4	4	5	5	4	9	10	10	3	3	9	3	3	3	4	2		8	5	10	5	5	9	6	4	10	5,5
Toilet C	TC3	3	1	10	8	7	7	6	3	4	4	9	9	3	8	6	5	6	8	8		7	4	6	5	3	2	?	10	6,0
Coffee point A	CA	-	1	5	3	2	2	3	8	9	9	4	4	8	3	3	3	3	5	5	7		9	4	4	8	5	3	9	5,0
Coffee point B	CB	-	1	12	10	9	9	8	3	4	4	11	11	3	10	8	7	8	10	10	4	9		8	7	2	4	?	12	7,4
Kitchen A	KA	-	1	7	5	4	4	3	7	8	8	6	6	7	5	3	3	2	5	5	6	4	8		3	7	4	5	8	5,2
Kitchen B	KB	-	1	7	5	4	4	3	6	7	7	6	6	6	5	3	2	3	5	5	5	4	7	3		6	3	5	7	4,9
Repro	R	-	2	11	9	8	8	7	2	3	3	10	10	2	9	7	6	7	9	9	3	8	2	7	6		3	?	11	6,5
Staircase	SC	-	2	8	6	5	5	4	3	4	4	7	7	3	6	4	3	4	6	6	2	5	4	4	3	3		?	8	4,6
Lift	L	-	2	5	2	3	3	4	?	?	?	3	3	?	2	4	4	4	4	4	?	3	?	5	5	?	?		5	3,6

Appendix E – Qualitative results

1. Aestate

Date	3rd May 2021
Time	12:00h – 12:50h
Location	Microsoft Teams
Organisation	Aestate
Participants	Jetske de Graaf
	7 participants

00:00:19
Moderator: Welkom. Nogmaals dank voor jullie deelname aan de vorige onderdelen. Heel fijn dat jullie ook hier weer aanwezig zijn. Zoals jullie inmiddels weten gaat mijn onderzoek over de invloed van de werkomgeving op fysieke activiteit van kantoormedewerkers en dan gaat het grotendeels over de invloed van de indeling van ruimtes binnen het kantoor op lopen en traplopen en met indeling van ruimtes bedoel ik dan de locaties van en afstanden tussen werkplekken en faciliteiten. Maar verder wordt er ook gekeken naar zowel de kantoor en thuis omgeving en niet alleen naar de fysieke omgeving, maar ook persoonlijke en sociale factoren die daarbij een rol spelen, die beweging remmen of ondersteunen. Het doel van deze discussie is om de resultaten van de eerste onderzoek stappen, het kwantitatieve onderdeel, beter te begrijpen. En dan gaat het voornamelijk om het begrijpen van de fysieke activiteit uitkomsten tijdens werkuren thuis en kantoor. Dus waarom bewegen jullie nou zoveel, zoals jullie doen? Om deze discussie goed te laten verlopen, heb ik een aantal aandachtspunten opgeschreven. Het gaat natuurlijk komen verschillende perspectieven, dus hoe jullie verschillen qua mening en bevindingen, en daarom zijn ook geen goede of foute antwoorden. En omdat ik het gesprek opnemen en ga transcriberen is belangrijk dat jullie niet door elkaar heen praten, maar dat is sowieso wel fijn en daarom vraag ik jullie jezelf te muten als je niet aan het woord bent en vraag ik jullie je virtuele handje op te steken als je wat wilt zeggen, dan zal ik aangeven wie er kan praten op dat moment. Je hoeft het natuurlijk niet met elkaar eens te zijn, maar het is wel belangrijk om respectvol met elkaar te praten, graag je telefoon op stil en als je dan moet reageren, het liefst zo stil mogelijk en doe zo snel mogelijk weer mee aan de discussie. Mijn rol als moderator is om de discussie te leiden, niet om jullie statement te beoordelen. Jullie praten met elkaar, niet met mij. Je fysieke activiteit wordt beïnvloed door de periode en de werkomgeving denk bijvoorbeeld aan de verschillen tussen voor corona en tijdens corona en wanneer je wel of niet naar kantoor mocht of beperkt met een aantal mensen, maar ook aan of het thuis of op kantoor is. En daarom is het

belangrijk om aan te geven over welke werkomgeving je praat en om welke periode. Het doel van deze discussie is om deze vraag te beantwoorden, dus welke ruimtelijke, sociale en persoonlijke factoren ondersteunen en remmen lopen en traplopen binnen de kantoor- en thuiswerkomgeving. We starten zo met een vraag over de invloed van de indeling van ruimtes binnen de kantooromgeving en aansluitend focussen we ons op de ruimtelijke, sociale en persoonlijke factoren die een rol spelen, zo wel thuis en op kantoor. Dit is het eerste onderdeel. Hier zien jullie de plattegrond van het kantoor in Odijk. Ik heb dit verdeeld in verschillende zones waaronder werkplek groepen, faciliteiten waaronder het toilet, keuken, vergaderruimtes en verder zien jullie ook verkeersruimtes onder de naam hal en ik wil jullie even vragen om goed te kijken naar de locaties van de werkplekken en de namen die daarbij horen. Als je binnenkomt dan is het eerste deel werkplek b, dus dat is de eerste werkplek. En daarachter zit dan werkplek a en links in de hoek, vanuit als je binnenkomt, werkplek c en dan ga je naar boven, zie je werkplek d en e dus aan het begin als binnenkomt b daarachter werkplek a, dan werkplek c links in de hoek en d en e boven met d als dichtstbijzijnde bij de trap en e verder weg. En wat ik heb gedaan, is deze zones en verbindingen ertussen abstract weergegeven in een spatial graph. Dat ziet er zo uit. De cirkels representeren de zones en de lijnen daartussen representeren de looproutes tussen deze zones. Dus bijvoorbeeld van werkplek c kun je na drie verschillende plekken in het kantoor lopen en als je van werkplek c naar werkplek a gaat moet je via bijvoorbeeld hal e naar werkplek a en de afstand is dan twee verbindingslijnen. En dan kun je van werkplek c ook naar drie plekken. Van de keuken bijvoorbeeld maar twee plekken. En als je van werkplek c naar vergaderruimte b wil, dan moet je minimaal vijf verbindingslijnen afleggen en moet je bijvoorbeeld sowieso de trap passeren. Maar je kunt natuurlijk ook via andere routes bij dezelfde locatie uit te komen. Via de spatial graph kun je verschillende dingen berekenen, bijvoorbeeld de centraliteit van bepaalde zones, maar ook de complexiteit van deze zones. De centraliteit van elke zone is de gemiddelde afstand tot andere zones. Of bepaalde type zones. Zoals ik net al zei, de afstand wordt berekend door het aantal verbindingslijnen bij elkaar op te tellen. En zo kun je van werkplek c bijvoorbeeld, met een afstand van twee naar werkplek a en de afstand van vijf naar vergaderruimte b. En dat kun je dan van elke locatie berekenen dus van werkplek c, wat de afstand is naar alle andere locaties en daarvan het gemiddelde nemen. En dan heb je de centraliteit van deze plek ten opzichte van andere zones. De complexiteit van elke zone is het aantal verbindingslijnen verbonden met de desbetreffende zones, ook wel het aantal richtingen die je op kan lopen vanaf deze zone. Dit representeert vaak ook de drukte van de zone. Dus van werkplek c kun je naar drie verschillende plekken en dat betekent dat het waarschijnlijk hier drukker zal zijn, hier omheen, dan als je kijkt naar werkplek e waar je maar één verbindingslijn hebt dat eigenlijk een beetje afgezonderd is, werkplek b heeft nog meer ruimte eromheen. Dus die zal drukker zijn. Wat hebben jullie dan aangegeven in je doorsnee kantoorwerkdag: de meesten van jullie hebben aangegeven het vaakst te lopen naar werkplek b. Dus dat geeft eigenlijk de populariteit van de werkplek aan. Dus werkplek b is het populairst, daarna werkplek c en a en dan werkplek d en e op de tweede verdieping. Dus werkplek b is als je direct binnenkomt werkplek a is direct erachter, en werkplek c links in de hoek als je vanuit de entree kijkt. Ik heb dat dan natuurlijk berekend, de centraliteit van elke werkplek en dan kun je zeggen: hoe populair de werkplek, hoe groter de complexiteit van deze werkplek. Dus je werkplek b is met meer lijnen verbonden dan d en e. Dit correleert met de populariteit van de werkplek. Dus hoe hoger de complexiteit, hoe meer bewegingen waarschijnlijk plaatsvindt naast werkplekken en voelt daardoor drukker aan. Dus het lijkt erop dat jullie de drukte bijvoorbeeld opzoeken als je kijkt naar de werkplekken. Wat je ook kan zeggen, wat ook correleert is: hoe populairder de werkplek, hoe centraler de werkplek is ten opzichte van andere werkplekken of faciliteiten of ten opzichte van buiten. Dus werkplek b is een stuk centraler ten opzichte van andere werkplekken dan werkplek d en e zijn. En zo kun je dat ook zien met faciliteiten. Dat werkplek b gemiddelde afstand tot faciliteiten waaronder de wc, keuken, vergaderruimtes is centraler. Wat wil ik dan van jullie weten. Heeft de indeling van ruimtes invloed op je werkplek keuze?

Dus klopt het dat de centraliteit invloed heeft op jullie werkplek keuze of hoe druk het is, de complexiteit, maar denk ook bijvoorbeeld of de afstand tot bepaalde faciliteiten invloed heeft op je werkplek keuze. Dat je bijvoorbeeld een werkplek kiest die heel dichtbij de wc is gelokaliseerd maar dat het eigenlijk minder uitmaakt of je dichtbij vergaderruimtes bent. Maar het kan natuurlijk ook zijn dat de indeling van ruimtes weinig invloed heeft op je werkplek keuze. En dat er andere belangrijkere factoren meespelen waarom jij voor een bepaalde werkplek kiest of waarom juist niet voor andere bepaalde werkplekken. Denk dan ook bijvoorbeeld aan andere ruimtelijke factoren of sociale of persoonlijke factoren. Wie wil er van start gaan?

00:09:15
Participant 3: Ik wil oh.

00:09:18
Moderator: [name participant 4]

00:09:20
Participant 4: Ja is goed, netjes met een handje. Wat voor mij voornamelijk uitmaakt is dat ik dan liever beneden zit, zeg maar, en dan, wat ik dan bij mezelf merk is dat ik liever dan aan de kant van het daglicht zit dan aan de andere kant waar je geen raam naar buiten hebt zeg maar.

00:09:39
Moderator: Ja, waarom kies je dan specifiek voor beneden?

00:09:44
Participant 4: Omdat je meer bij anderen zit en je toch wat, ja, meer verbonden voelt met de rest en ook nou ja dichterbij de faciliteiten, keuken, wc.

00:09:57
Moderator: Ja, [name participant 3]

00:10:01
Participant 3: Wil je het plaatje van het kantoor er weer bijpakken paar slides terug. Dan kan ik iets makkelijker, denk ik, toelichten, ja deze. Ik ging inderdaad vaak graag richting waar werkplek a staat en werkplek c, en dat kwam vooral door de combinatie dat je daar wat meer daglicht had op je werkplek. En dat je daar ook een kachel hebt bij de plekken. Dus dat was bij mij bijvoorbeeld een reden om dat te kiezen en ook de afspraak dat als je beneden zat, of boven zat, dat je boven in stilte kon werken, was voor mij dan juist een keuze om dan afwisselend tussen die plekken te kiezen. Of boven. Want als je boven ging zitten en dan kon je wat rustiger, ongestoord werken. Dus eigenlijk was dat een combinatie van mijn van keuze tussen boven beneden en als ik beneden zat, de koos, ik die achterste plekken, vooral eigenlijk voor het daglicht.

00:10:48
Moderator: Ja. Ik wilde [name participant 4] nog even wat vragen. Ging het dan, welke werkplek koos je dan vooral?

00:10:55
Participant 4: Dan zit ik liever op werkplek a of b dan op c.

00:11:02
Moderator: Ja. [name participant 1]

00:11:05
Participant 1: Ja, voor mij een beetje hetzelfde als wat [name participant 4] aangeeft. Dus ik ben vaak

op kantoor, vind ik het wel lekker, wat rumoer om me heen te hebben, dus dan vond ik het ook niet zo erg, vond ik het juist wel fijn om beneden te zitten, ook bij de voorzieningen in de buurt en inderdaad wat [name participant 4] zegt, graag werkplek a of b kies ik toch ook vaak. Omdat dat gewoon lekker zit qua daglicht.

00:11:34
Moderator: Ja, jullie praten dan vooral over beneden zitten bij de faciliteiten, maar dat betekent dat je dan liever bij bijvoorbeeld de keuken en toilet zit dan dicht in de buurt van de vergaderruimtes.

00:11:45
Participant 1: Ja. Voor vergaderruimte vind ik het dan weer niet zo erg om dan even naar boven te lopen.

00:11:50
Moderator: Ja. En dat geldt ook voor degenen die zojuist hebben gesproken?

00:11:54
Participant 3: Ja.

00:11:59
Participant 4: Ja.

00:11:59
Participant 1: Wat ik ook merk is dat je. Er zijn wel eens, en het gebeurt wel eens dat je boven gaat zitten omdat je wat meer wil concentreren, maar over het algemeen gaat gewoon de eerste beneden zitten en de tweede gaat dan daarbij in de buurt zitten, omdat het wel gezellig. Pas als alle plekken beneden vol zijn, gaat iemand naar boven. Dat is mijn ervaring.

00:12:22
Moderator: Ja. [name participant 5]

00:12:27
Participant 5: Even kijken hoor, mijn voorkeur is inderdaad ook wel wel beneden. Ja, ben je dr, ook omdat je gebeurt wel meer, dus dat is altijd wel wat wat prettiger mijn voorkeur plek is toch wel echt c of a en bij c meer over die horizontale plekken, om het nu maar even zo te noemen. Waarom? Ook omdat dat plekken zijn, dat je daadwerkelijk iedereen of in ieder geval de hele ruimte kunt overzien. Dat vind ik zelf dan ook weer een prettige. Zit je niet per se mensen achter, eerder of a hoort er natuurlijk eigenlijk ook bij. Maar goed, die was eigenlijk altijd al bezet door [name colleague], dus dat was, viel al vaak al heel snel af. Waarom ook die plekken en ik ook wel lekker qua licht. Dat vind ik ook altijd wel prettiger plekken en dan vind ik het iets minder belangrijk dat het niet naast het koffiezetapparaat is. Ik bedoel, zo ver is die afstand vind ik die nou ook weer niet, dus daar heb ik niet zo heel veel last van. Dus ja, ik denk dat eigenlijk inderdaad wat [name participant 1] ook zegt, zodra het eenmaal beneden vol is, ja, dan ga je naar boven. Of als ik echt besluit van oké het is beneden te rumoerig, dan zou ik boven gaan werken, maar anders probeer ik al snel toch eerder een plek beneden te hebben.

00:13:42
Moderator: Ja. [name participant 2]

00:13:45
Participant 2: Ja, ik kan eigenlijk helemaal vinden in de woorden van [name participant 5]. Hij noemde de dingen die ik ook wilde noemen maar die nog niet genoemd waren, dus ik vind het ook chill om van

me af te kijken. Dus dat is meer. Nu in de corona opstelling, in ieder geval op werkplek a en c en qua faciliteiten is het allemaal niet zo ver weg dat je daarvoor dichtbij of ver weg moeten gaan zitten, naar mijn idee. Dus daarom die voorkeur en ook hetzelfde met beneden je begint, het begint gewoon eigenlijk automatisch een beetje beneden, tot dat het daar voller raakt en je naar boven gaat.

00:14:22
Moderator: Ja, dank je wel. [name participant 6]

00:14:28
Participant 6: Ja. Ik heb eigenlijk inderdaad naar mijn voorkeur gaat ook voornamelijk uit naar die a en b waar ik vaak ging zitten en eigenlijk nog steeds wel vaak gaan zitten, en dan eigenlijk wel met name als ik dan, ik weet niet als je nog eentje terug wil doen, bij b zijn eigenlijk twee blokken, dan meer dat het linker blok wat aan a grenst zeg maar dat hoekje vond ik altijd wel een fijn plekje. Ook met naar buiten toe wat daar makkelijk kan en ook dat je dan net iets minder in de loop zit van de mensen die binnen komen lopen bij het blok rechts er naast en ook inderdaad vooral de voorkeur meer om beneden te zitten. Enerzijds omdat het dan net wat rumoeriger is en als ik denk van nou, ik moet me nu even concentreren, dan ga ik wel boven zitten, want dat is gewoon echt rustiger plekken en zeker als je kijkt naar voorheen voordat we ook die eigenlijk de nieuwe bureaus niet hadden, waar die bureaus boven ook minder makkelijk in hoogte te stellen. Dus merkte ikzelf gewoon vaak dat ik dan wat ze dan net te laag stonden, of net die stoelen dan net niet hoog genoeg konden, waardoor die plekken ook niet zo heel erg lekker werken, vond ik toen altijd. En je zit daar ook met de schuine het dak, wat daar zit. Dus je hebt ook wat wat krapper gevoel als je daarboven werkt, dus dat is voor mij ook nog een voorkeur om beneden te zitten. ehm ja, en inderdaad ook inderdaad, die faciliteiten zijn ook fijn dichtbij de hand, want ik denk dat ik vaker op neer loop naar het koffieapparaat dan dat je misschien een keer de trap op moet voor een overleg in een vergaderzaal. Dus dat is makkelijk.

00:15:56
Moderator: Ja, dank je wel. [name participant 7]

00:16:04
Participant 7: Ik heb net een stuk brood in mn mond. Ik ga helemaal dwars tegen alles en iedereen in. Ik ga het liefst boven zitten en dan in het hok boven werkplek a.

00:16:22
Moderator: En waarom?

00:16:25
Participant 7: Omdat ik dat een hele fijne, lichte, luchtige plek vindt. Waar je de ramen open kan zetten, dus waar je frisse lucht binnen kan halen waar je licht heb, waar je zicht hebt naar buiten en daar kan ik ook gewoon de werkzaamheden doen die ik wil doen. Omdat ik vrij veel in overleg zit of aan het bellen, dus dan stoor je verder niemand en als ik echt geconcentreerd werk moet doen wat ik nu thuis zou doen maar wat ik dan op kantoor deed. Dan zou ik gaan zitten op werkplek c, en dan het liefst de meest rechtse.

00:17:02
Moderator: Ja, en dan is het ook belangrijk dat je dan boven gaat zitten, dat je dan dichter bij de vergaderruimtes zit, of maakt het dan...

00:17:08
Participant 7: Dat is een vergaderruimte ik ga in die vergaderruimte zitten.

00:17:13
Moderator: Oké, ja, dus niet op werkplek d of e.

00:17:17
Participant 7: Ik heb ik die. Ik zie hem niet waar die zit. Nee vergaderruimte d. Daar ga ik op zitten.

00:17:22
Moderator: Oké, ja, dus eigenlijk speelt je dag dan vooral. Waar anderen dan eens in de tijd naar een vergaderruimte gaan, ga jij dan vanuit vergaderruimte d soms naar andere plekken?

00:17:35
Participant 7: Ja, als ik geen overleg heb, dan zou ik dus op werkplek c gaan zitten en meestal heb ik overleggen en moet ik bellen en dan ga ik naar vergaderruimte d.

00:17:43
Moderator: Ja, en waarom is dan de voorkeur voor specifiek vergaderruimte d ten opzichte van c en b?

00:17:54
Participant 7: B vind ik waardeloos, die heeft geen licht, geen lucht, het echt helemaal niks, ja en tussen c en d, daar zit het verschil in dat als je in d zit, dan heb ik het idee dat ik meer overzicht heb over wat er beneden gebeurt dan wanneer in je in c zit.

00:18:12
Moderator: Ja.

00:18:13
Participant 7: En d zit je echt in de meest ver wegste hoek van het gebouw loop technisch gezien.

00:18:21
Moderator: Ja. [name participant 6]

00:18:26
Participant 6: Ja, wat ik inderdaad nog wat mij nog inderdaad binnenschoot wat [name participant 7] zei van als ik rustig wil gaan werken, dan zou ik juist boven gaan zitten meestal en als ik dan boven zou gaan zitten op werkplek d of e, gaat mijn voorkeur wel altijd uit naar werkplek e, omdat je bij d zit je wel, je zit daar rustig boven, maar je zit ook niet rustig omdat iedereen die een overleg heeft steeds langs loopt. Dus je zit daar wel echt wel in de loop te werken. Dus als ik rustig wil gaan werken en ik ga dan naar boven toe en er zijn ook de [...], dus dan heb je ook net meer ruimte voor dingen uit te zetten op je scherm, dan ga ik toch wel vaak naar e ook.

00:19:04
Moderator: Ja.

00:19:04
Participant 6: En dan niet e met je gezicht tegen de muur, ik zie dat die er ook op staat.

00:19:08
Moderator: Ja, wel weer met het overzicht.

00:19:10
Participant 6: Ja. Nou ja, inderdaad, die met die twee bureautjes tegenover elkaar van werkplek e. Een van die twee.

00:19:18
Participant 7: Die zitten bij de ramen en kan je lekker naar buiten kijken.

00:19:21
Participant 6: Kun je af en toe even...

00:19:26
Moderator: En bij andere mensen nog iets gehoord waar ze denken dat vind ik ook, of dat vind ik totaal niet. Dat is helemaal niet iets waarop ik mijn keuze baseer. [name participant 3]

00:19:39
Participant 3: Ja, waar ik me ook wel in kan vinden, is wat [name participant 7] ook zei van werkplek b, het is daar en vrij donker. Maar daar zitten ook veel plekjes waarbij je met je rug naar de loopt toe zit. Zeker dat plekje dat tegen hal c aan zit, of het plekje wat tegen hal f aan zit. Ook plekje hal b, daar die kop plekjes zeg maar. Ja, dan heb je het gevoel dat je heel erg met je rug naar de rest toe zit, dat andere ook langs jou lopen, zonder dat je kan zien wie dat is. Vind ik zelf altijd heel onprettig. Ik zou er zelf niet zo snel in die hoek gaan zitten bij werkplek b, dus daar herkende ik me juist in.

00:20:19
Moderator: Ja. [name participant 4]

00:20:20
Participant 4: Ja daar herken ik me inderdaad ook wel in. Was ik ook nog vergeten te zeggen. En misschien. Voor die vergaderruimtes dat dat ook afhankelijk van een sessie, ook wel een beetje met het meubilair zeg maar te maken heeft. Als je een wat formeler gesprek hebt gesprekken. Dan zit ik misschien liever in vergaderruimte D. Omdat je dan gewoon een normale tafel en stoel hebt in plaats van ik vind vergaderruimtes c meer voor een soort brainstormen sessie achtig iets. Misschien informelere sfeer, dus dat.

00:20:50
Moderator: Ja, dus eigenlijk de keuze voor vergaderruimtes c, d of b maakt de afstand van lopen niet uit. Het gaat meer om andere ruimtelijke factoren. Of ziet iemand dat toch nog anders?

00:21:06
Participant 1: Nee, dat zie ik wel ook. Ja, dat maakt mij niet zoveel uit of ik loop naar d of naar b.

00:21:11
Moderator: Ja.

00:21:14
Participant 6: Nee, dat heb ik inderdaad ook hetzelfde en bij d heb je ook nog zo'n groot, dat grote scherm daar staan. Dus daar kun je ook nog wat. Nou, ja, als je een beetje op een scherm wil schrijven of doen, dan is dat ook nog wel makkelijk. Maar verder heb ik ook geen voorkeur voor een vergaderzaal.

00:21:30
Moderator: Ja. [name participant 3]

00:21:31
Participant 7: De loopafstanden zijn natuurlijk redelijk beperkt.

00:21:34
Moderator: Ja. [name participant 3]

00:21:39
Participant 3: Ja, nog voorkeur, inderdaad, ook bij die vergaderruimtes, ik kies dan vaak die ruimte met die hoge tafel, met die hoge stoelen erbij. En wat ik daar fijn aan vind is dat ik dan af en toe kan afwisselen zeker ook als je bijvoorbeeld nog in teams zit, dan is 't superlekker om af en toe gewoon te gaan staan zonder dat iemand dat door heeft. Dan kun je toch daarmee doorgaan. En het gekke is op het moment dat ik weet dat ik graag wil staan ga ik in c maar als ik weet dat ik bij wil zitten ga ik in b. Maar niet doordat daar zitstoelen staan, want er zitten ook gewoon krukken in ruimte c maar de ruimte c krukken zijn van staal, en dat vind ik koud om op te zitten, en dan zit ik liever niet dus dan ga ik in de ruimte daarnaast zitten. Er zijn zelfs dat soort detail dingen over type materiaal van de stoel, waar ik dan weer kies van ik wil liever staan, maar dan als ik dan ga zitten dan wil ik juist weer die ruimte ernaast omdat ik dan gewoon weer op een stoffen stoel kan zitten. Details dus.

00:22:23
Moderator: Ja, hebben andere mensen ook wat aanvullingen of tegenstrijdige dingen. [name participant 6]

00:22:37
Participant 6: Ja, ik moet zeggen dat ik nu ook nog wel mijn voorkeur gaat altijd wel uit, ook naar als ik het overleg hebt, vergaderruimtes c of d. Maar eigenlijk als ik wel snel met wat meer mensen ben. Dan vind ik b wel weer fijn, omdat je dan net een wat langere tafel hebt, waar je met elkaar aan kan zitten en waar je voor mijn gevoel iets meer ruimte hebt, ook al is het dan qua lucht en ventilatie ook niet per se de allerlekkerste ruimte. Maar toch zit ik daar dan wel lekkerder.

00:23:06
Moderator: Nou een laatste poging. Nog mensen die iets willen zeggen. Dan ga ik door naar het volgende onderdeel. Nou ja, jullie hebben aangegeven in de enquête meer te willen bewegen in de toekomst, zowel op thuiswerkdagen als kantoorwerkdagen en op thuiswerkdagen zelfs nog iets meer. Er is maar een enkeling er niet mee eens. Wat ook uit het onderzoek is gekomen is dat jullie gemiddeld minder lopen thuis dan op kantoor, terwijl je thuis eigenlijk meer de vrijheid hebt om meer te bewegen, bijvoorbeeld tijdens lunchpauzes maar toch is er gemiddeld minder bewogen. En wat ook opvalt is, er wordt wel minder gemiddeld bewogen thuis dan op kantoor. Maar dit verschilt erg per persoon. Dus waar de één veel meer zegt te bewegen op kantoor zegt de ander meer te bewegen thuis. En nou ja, aangezien jullie aangeven meer te willen bewegen in de toekomst zowel op kantoor was thuis en dat het ook verschilt hoeveel mensen beweging op kantoor en thuis en dat er ook grote verschillen bestaan tussen medewerkers, zou ik graag willen weten wat jullie nou daadwerkelijk nodig hebben om meer te gaan bewegen tijdens werkuren thuis en op kantoor. Dus waarom lukt het nu nog niet om je gewilde fysieke activiteit te bereiken thuis en op kantoor? En zijn die factoren die daar van invloed op zijn thuis anders dan op kantoor en denk dan bijvoorbeeld aan persoonlijke, sociale, bijvoorbeeld culturele of organisatorische aspecten of andere ruimtelijke factoren, of misschien wel weer aan de indeling van de ruimtes. Wie wil er van start gaan?

00:25:04
Participant 1: Ja hoor, zonder handje. Wat ik nodig heb om meer te bewegen. Dat is denk ik wel wat anders thuis dan op kantoor. Ik merk dat ik thuis van overleg tot overleg ingepland op kantoor probeer ik dat ook nu wel te vermijden. En dan merk ik gewoon dat ik eigenlijk geen tijd heb om überhaupt even op te staan en drinken te pakken, maar dat je gewoon meteen doorgaat van je afspraken die om 11 uur eindigt naar de afspraak die om 11 uur begint. Dus dat is wel ook iets wat je natuurlijk wel zou kunnen ondervangen met andere afspraken maken he, over bijvoorbeeld een inloop vijf minuten of afspraken uberhaupt maar 50 minuten plannen zoiets.

00:25:56
Moderator: En waarom gebeurt dat nog niet?

00:25:59
Participant 1: Goeie vraag eigenlijk waarom dat nog niet gebeurd.

00:26:07
Moderator: Het antwoord weet je daar niet op.

00:26:12
Participant 1: Nee, ik heb tot nu toe één iemand ben ik tegengekomen die dat heel structureel doorvoert.

00:26:17
Moderator: Ja, en op kantoor, dat plan je wel in die momenten ertussen?

00:26:22
Participant 1: Ja, op kantoor had ik pre corona had ik niet zo'n drukke overleg dag zeg maar. Dus dan had ik wel wat overleggen, maar dan was er tussendoor altijd liep ik altijd weer naar beneden en ging ik ook gewoon weer achter een werkplek zitten. Ehm en op kantoor wil je natuurlijk ook even afzonderen hè. Dus ook als ik nu naar kantoor zou gaan en veel overleg zou hebben, dan ga ik idealiter wel boven zitten om te bellen, om te videobellen dus dan ben je ook in beweging. Terwijl thuis zit ik in mijn eentje in deze ruimte dus ja of ik nou aan het overleggen ben of aan het typen dat maakt niet zoveel uit dus ik zit de hele tijd mijn plek is in die zin multifunctioneel dus ik hoef er ook niet van weg anders dan als ik echt heel nodig moet plassen.

00:27:06
Moderator: Ja. [name participant 3]

00:27:12
Participant 3: Ja, ik merk dat ik mijn werkplek keuzes, die hebben eigenlijk helemaal niks te maken met hoeveel ik loop, hoe actief ik ben. Maar vooral van mijn werk zelf en mn planning van mijn werk, die zijn gewoon dominant in hoeveel beweging ik die dag heb. En ik merk dat met name agenda's van anderen, heel overheersend zijn in of ik die dag wel of niet tijd heb om een ommetje te maken of dat die dag gewoon toevallig volgepland zit met wanneer iedereen kon en dat ik dan soms zelfs ook mijn pauze vol plan. Omdat dan in ieder geval alle afspraken door kunnen gaan. Dus mijn hoeveelheid activiteit die ik heb tussen mn werk is dus vooral gedomineerd door de planmogelijkheden van externe.

00:27:58
Moderator: Ja, en dan zie je nog geen mogelijkheid in, omdat bijvoorbeeld aan te passen?

00:28:04
Participant 3: Ja, ik kan dat sturen. Maar je bent vaak ook wel geneigd om in zeker zin je klanten te pleasen en dat, dat klinkt misschien een beetje gek, maar je probeert je toch aan te passen naar wanneer de klant graag de sessies wil hebben, zodat iedereen er bij kan zijn en daar stem je jezelf toch vaak een beetje op af en de andere dagen dat je dus niet al die dingen hebt, maar gewoon dingen aan het uitwerken bent, dat zijn dan dagen dat ik dan denk je nu kan ik makkelijk is tussen de middag 20 minuten rondje gaan lopen, dan lukt dat heel makkelijk. maar de dagen dat het dus niet lukt, de reden is dan niet omdat ik er geen zin in heb of dat ik er geen tijd voor wil maken maar dat ik dus eigenlijk een beetje geleefd word door afspraken die ik plan met externe.

00:28:43
Moderator: Ja. En is het dan verschil alleen in dat rondje wandelen, of zit daar meer verschil in?

00:28:52
Participant 3: Ja, eigenlijk juist wel dat, want de dingen daar buitenom van even naar het koffieapparaat lopen of eventjes theezetten of eventjes iets kleins pakken om ergens te eten. Dat is zo'n minimale impact op de hoeveelheid die ik in z'n totaliteit beweeg, kijk, het is misschien wel dat je dan nog een aantal extra moment hebt en dat je even opstaat en thee gaat maken, omdat daar de mogelijkheid voor is omdat je niet in teams met iemand aan het bellen bent maar dat is minimaal. Ik denk dat juist de dagen dat ik niet vol gepland zit, dat ik dan even echt de tijd neem voor mezelf 's om middags even een rondje te wandelen. En dat daar echt het grote verschil in zit voor mij althans.

00:29:28
Moderator: Ja en het bewegen tijdens vergaderingen is geen optie?

00:29:34
Participant 3: Nou ja. Wat ik net aangaf dat ik dan kies voor een vergaderruimte waar je ook even kan gaan staan. Maar het praten en lopend vergaderen is vaak geen optie, omdat je toch wel veel dingen in beeld moet toveren en daar dan uitleg bij geven of juist een sessie moet begeleiden, waardoor het wat minder makkelijk is om te zeggen: ik ga even lopen kan misschien wel in overleg met een collega waar je niet iets bij moet pakken of iets anders je interns. Maar dat is eigenlijk wel heel beperkt hoor dat dat kan.

00:29:58
Moderator: Ja en maakt het nog uit thuis of op kantoor?

00:30:04
Participant 3: Voor mij persoonlijk merkte ik dat als ik op kantoor was, dat ik dan wat minder ging lopen, omdat ik dan juist dat moment in de pauze wilde benutten om met collegas te socializen. Want dan zag ik ze eindelijk dus dan wilde ik ook dat moment gebruiken met hun even bij te kletsen in plaats van buiten te gaan lopen, want je wil met die allemaal even spreken. Dan zou je eigenlijk moeten zeggen kom op iedereen moet met mij mee naar buiten, wat ik wil ook nog lopen, maar daar zit mensen die vaak net iets later of vroeger eten, dus juist leuk om daarmee te socializen.

00:30:32
Moderator: Ja, dus dan zou je het helemaal moeten afstemmen om tegerlijkertijd naar buiten te gaan. [name participant 6]

00:30:45
Participant 6: Ja, bij mij zit er echt een heel groot verschil tussen bewegen thuis of op kantoor. Ik, als ik thuis werk, beweeg ik echt bijna niet. Dat heeft er enerzijds mee te maken, omdat mijn leefruimte niet groter is dan 20 vierkante meter ook. Dus het maakt niet uit, of ik wel of niet wat ga staan. Met twee stappen ben ik aan de andere kant. Dus er zit gewoon weinig beweging in dan en ik heb ook in pauzes ik merk ook heel erg het is inderdaad wat [name participant 3] net zei de laatste tijd steeds meer ook dat overleggen dan rond lunchtijd zijn, om dat dan inderdaad iedereen kan aansluiten en dan daaromheen heb ik vaak toch andere dingen gepland, wat wat in mn hoofd dan af moet of waar ik mee aan de slag wil, dat ik dan niet een half uur in mn hoofd vrij kan geven om even naar buiten te gaan en daar heb ik toch zoiets van dan werk ik liever door en ga ik een half uur eerder stoppen en dan effe naar buiten of wat doen, dan dat ik nu een half uur naar buiten ga. Dus dat speelt bij een beetje mee. Waarom ik dan niet heel erg veel beweeg per dag thuis en ik moet zeggen: inderdaad op kantoor, merk je wel dat ik veel meer al loop, ook als je dan even met elkaar daar zit en ik heb een

vraag aan met diegene die aan de overkant zit dat je dan even daar naartoe loopt ja dat is nu iets minder snel omdat je toch afstand moet houden, dat je dan soms wel blijft zitten, maar dan heb je net wat meer, dat ik dan toch naar elkaar toeloop of inderdaad, net dat overleg boven in de vergaderzaal, waardoor je dan nog even weer naar boven loopt of in de pauze dat effe naar de Jumbo lopen even een rondje dus dan heb ik juist weer dat ik weer meer loop denk.

00:32:09
Moderator: Ja en dat je dan geen ruimte inplant om toch te lopen, komt die druk dan vooral vanuit jezelf?

00:32:16
Participant 6: Dat is dan puur vanuit mezelf dat ik denk ik heb geen tijd om nu naar buiten te lopen, of zo.

00:32:27
Moderator: Iemand anders nog aanvullingen of tegenstrijdigheden of andere redenen?

00:32:37
Participant 2: Bij mij is het ook zo wat eigenlijk al genoemd werd dat tijdens op kantoor dan beweeg je meer van plek naar plek, dus dan wordt er door dat overleg hebt en je gaat boven zitten en thuis heb ik die afwisseling minder, maar wel juist eerder dat ik in de, tijdens de lunchpauze ofzo beweeg, en dat is dan langer bewegen bij elkaar opgeteld dan van ruimte en ruimte.

00:33:02
Moderator: Ja, dus meer van een lange tijd achtermekaar bewegen

00:33:05
Participant 2: Ja.

00:33:05
Moderator: Ja, en waarom wordt er zo weinig afgewisseld thuis qua werkplek? Dat kan natuurlijk eventueel ook thuis.

00:33:19
Participant 2: Ja, het ligt een beetje aan waar ik werk. Als ik in [plaatsnaam] ben, dan is er gewoon niet zo veel ruimte. En als ik in [plaatsnaam] zit, bij mn ouders, dan ligt er ook een beetje aan waar je fijn kan bellen en achtergrond hebt en waar nog andere mensen ook langskomen.

00:33:36
Moderator: Ja, dus dan speelt de grootte van je huis wel een rol in dat je wisselt van een werkplek.

00:33:43
Participant 2: Ja, ik heb in [plaatsnaam] als voorbeeld heb ik één tafel, ja, en ik wil wel aan tafel zitten, dus dan blijf je wel aan die tafel zitten dat

00:33:57
Moderator: Ja. [name participant 7]

00:33:57
Participant 7: Nou wat je gewoon, wat ik merk nu, dat is net ook kort genoemd is dat er geen looptijd meer is, alle overleggen worden zo stamp vast aan elkaar gepland. Je kan wel een half uurtje de tussen nemen, hè. Dus dat je na elk overleg een halfuurtje plant, maar dan is het wat [name participant 6] zegt, dan ga je dat halfuurtje niet lopen. Want dan ga je nog effe je mail checken, je gaat dit checken,

je gaat dat checken. Terwijl als als ik voor mij op kantoor ben dan heb ik geen opdrachtgevers om mee te overleggen. Dan ben ik vooral beschikbaar voor of uitwerken of voor intern overleg, en dan heb je gewoon veel meer vrijheid om ook daadwerkelijk te lopen. Dus wordt je minder door je agenda geleefd.

00:34:38
Moderator: Ja, en nu wordt er vooral gesproken over een half uur, en waarom zou dat niet bijvoorbeeld vijf minuutjes kunnen zijn?

00:34:47
Participant 7: Je kan ook vijf minuten tussen de overleggen inplannen maar dan kan je net naar beneden wat [name participant 1] zegt om even te plassen en een nieuwe koffie te pakken. En dat is gewoon op de één of andere manier is er nu in de COVID situatie iets veranderd waardoor die overleggen ineens allemaal moeten. Ik heb veel meer overleggen dan dat ik normaal had. Dat is echt heel bijzonder, want ik kan gewoon nooit meer terug naar de situatie waarin je reistijd hebt, want dan krijg ik mijn werk niet af.

00:35:18
Moderator: Ja. [name participant 5]

00:35:22
Participant 5: Ja ik wou er inderdaad al op aanhaken van is dat niet gewoon dat dat wordt gerekend: je hebt geen reistijd meer dus als het kan dan past het. Dus dat is het gemakkelijke maar ook meteen het vervelende in dat hele verhaal waar je eerder natuurlijk kunt zeggen van: ja, maar ik kan niet om 11 uur s ochtends in Nijmegen zijn. Ik noem maar wat, want ik heb om negen uur s ochtends daar nog een overleg, dus dan ja, je afspraken maken, dat gaat natuurlijk al snel wat anders, dus ik kan me zeker voorstellen dat dat een grote reden daarin is. Ehm. Als ik voor mezelf kijk, heb ik het gevoel dat ik thuis toch toch meer loop of in ieder geval meer bewust gaan lopen. In mijn mijn pauzes ga ik toch eigenlijk altijd wel een halfuurtje lopen. Tijdens de keek ben ik over het algemeen toch maar weer aan het lopen mits het echt heel slecht weer is. Ja, voor mijn gevoel ben ik juist thuis meer aan het bewegen en verschilt dat niet heel, of in ieder geval qua de tijdens de echte werkzame tijd verschilt dat voor mijn gevoel niet heel veel met kantoor.

00:36:20
Moderator: Ja, en waarom denk je dat dat verschil anders is?

00:36:29
Participant 5: Omdat ik, als ik thuis ben ga ik bewust lopen in mn pauze, ja, dan zit ik alleen, kan in mijn eentje op de bank gaan zitten, maar dat ja, zit ik ook niet echt op te wachten om weer in mijn eentje aan tafel, dus dan ga ik vind ik wel effe lekker om even te gaan lopen, maar dan heb je inderdaad hetgeen wat [name participant 3] zegt van ja, als ik dan op kantoor ben, dan vind ik het wel leuk om in mn pauze inderdaad even gewoon de rest van de mensen te spreken en daar gewoon even mee bij te kunnen praten. Ja, dat heb ik thuis niet of dat hoeft thuis niet. Ik kan in theorie kan ik iemand bellen, maar dan kan ik nog steeds gaan lopen, terwijl op het kantoor ga je toch meer. Ja, ga je toch sneller met zn allen aan elkaar bij elkaar aan tafel zitten.

00:37:03
Moderator: Ja. [name participant 7]

00:37:05
Participant 7: Sorry ik had mijn hand naar beneden moeten halen, want ik had geen hand meer.

00:37:12
Moderator: [name participant 6]

00:37:17
Participant 6: Ja, nou, dat is inderdaad wat [name participant 5] inderdaad nog tussendoor zei dat merk ik zelf ook met thuiswerken wel en bewegen. Ik ben ook nu de laatste paar weken begin van corona toen met thuiswerken dan was ik vaak niet alleen thuis aan het werk en dan waren mijn huisgenoten ook wel thuis, waardoor je in de in de pauze nog wel eens met elkaar pauze hielden en dat je dan wel echt een half uur voor je werk af wordt gehouden. En nu, ben ik toch vaak ook weer alleen thuis en heb ik daarom zoiets van, ja, dan is het eigenlijk wat [name participant 5] zegt ik ga dan graag naar buiten, dan denk ik juist dan werk ik liever door en dan stop ik wat eerder zodat als er dan mensen eind van de middag weer thuis zijn, dan ben ik dan ook eerder klaar. Dus bij mij is het juist tegenovergesteld, het alleen zijn.

00:37:57
Moderator: Ja, nu wordt er vooral gesproken over echt buiten een rondje wandelen. Hoe zit het precies met de kleine momenten tussendoor en het verschil op kantoor en thuis. [name participant 3]

00:38:15
Participant 3: Maar dat dat verschil is er inderdaad. Ik heb merk dat ik thuis misschien minder snel echt tussendoor ga lopen en dan pak ik echt dat moment smiddags om even een rondje te lopen, dan ga ik ook wat langer lopen, terwijl op kantoor loop ik denk wat sneller, eventjes nog een kopje thee halen, nog effe een andere collega kopje thee brengen, mag natuurlijk niet met corona, maar dat soort dingen. Weer even bij iemand langs lopen, dus dan heb je wat meer kleinere loopje tussendoor, dus daar is wel een soort verschil tussen.

00:38:40
Moderator: En dan komt het weer door die vergaderingen dat dat thuis niet lukt of heeft dat een andere reden?

00:38:46
Participant 3: Ja, ik denk dat ik thuis gewoon volledig op ga in mn werk en dan denk ik oh is het al vijf uur.

00:38:52
Moderator: Ja. [name participant 6]

00:38:58
Participant 6: Ja, ik heb inderdaad dat juist thuis, dat ik dan een stuk minder loop ook omdat ik dan tussendoor dat idee heb ik heb thuis altijd veel meer het idee als tussendoor even een stukje loop, dat ik niks aan het doen ben, terwijl op kantoor je ook heel vaak tussendoor loopt, koffie haalt ook voor anderen dan weer effe vijf minuten staat te praten omdat je elkaar bij de koffieautomaat tegenkwam en als ik dat thuis zeg maar doe heb ik al gelijk het idee van oh ik, ik moet wel doorgaan met mn werk, want ik was druk bezig.

00:39:23
Moderator: En dat is dan weer die druk vanuit jezelf, of heb je dat?

00:39:27
Participant 6: Nee, dat is ook vanuit mezelf, omdat ik dan denk van oh, ik ben daar mee bezig, ik moet ermee doorgaan en op het werk heb je daar op kantoor, heb je dan afleiding en dan ben je met elkaar.

En dan, ja, ben ik daar minder mee bezig met ik moet doorgaan ofso met waar ik op dat moment mee bezig ben.

00:39:43
Moderator: Ja. Andere mensen nog aanvullingen, tegenstrijdigheden of dingen die nog niet genoemd zijn? Misschien wel de invloed van de sociale aspecten, collegas die nog invloed hebben om elkaar wel of niet te stimuleren en waarom dat bijvoorbeeld niet altijd lukt.

00:40:13
Participant 1: Wat bedoel je precies?

00:40:16
Moderator: Nou ja, dat je elkaar ook een beetje kunnen stimuleren, of gebeurt dat niet, of is het dat je als team wat meer bewust doet om iets ergens mee te helpen, om iets meer te bewegen. [name participant 4]

00:40:31
Participant 4: Nou ja, meestal wel bij de interne overleggen wat kan. Als ik bijvoorbeeld coaching heb met [name colleague] of zo dan is het ook altijd elke maand wel de vraag: van gaan we lopen of zullen we gewoon binnenzitten. Maar dan, ja, dan dan gaat het makkelijker dan als je ook overleggen met externe of waar je aantekeningen moet maken of dat ze moeten overleggen waar je iets moet laten zien.

00:40:56
Moderator: Ja.

00:41:00
Participant 1: Ik vind juist wel dat het intern wel lukt, ook lang niet altijd maar de intentie is er wel zeg maar. Bij de keek een stukje te lopen of inderdaad, gewoon één op één een overlegje hebt, ja, zit denk ik meer in de overleggen en ik denk dat op kantoor veel makkelijker is om effe uit je werk losgerukt te worden en even naar de koffie te lopen met zn tweeën of even samen lunch te gaan halen of wat dan ook, dus dat. Ja dat werkt wel beter denk ik.

00:41:41
Moderator: Ja. Verder nog? Laatste poging tot iets zeggen wat nog niet is genoemd. Misschien dat nog een aantal persoonlijke, sociale of andere factoren die nog niet zijn genoemd, wat je in de toekomst meer zou willen toepassen om meer te bewegen. Dan wil ik jullie hartelijk bedanken voor jullie input voor jullie discussie.

2. draaijer+partners

Date	4th May 2021
Time	11:00h – 11:40h
Location	Microsoft Teams
Organisation	draaijer+partners
Participants	Jetske de Graaf
	3 participants

00:00:15

Moderator: Welkom allemaal en heel erg bedankt voor jullie deelname aan de vorige onderdelen van het onderzoek en ook heel fijn dat jullie hier ook weer aanwezig kunnen zijn. Zoals jullie inmiddels weten, gaat mijn onderzoek over de invloed van de werkomgeving op de fysieke activiteit van kantoormedewerkers en dan gaat het grotendeels over de invloed van de indeling van ruimtes binnen het kantoor op lopen en traplopen en met de indeling van ruimtes bedoel ik voornamelijk de locaties van en afstanden tussen werkplekken en faciliteiten. Verder wordt er gekeken naar zowel de kantoor en thuis werkomgeving maar niet alleen over de invloed van de fysieke kantoor en thuiswerkomgeving, maar ook over persoonlijk en sociale factoren die beweging remmen of ondersteunen. Het doel van deze discussie is het begrijpen van de resultaten van de eerste onderzoekstappen zetten, dus het kwantitatieve onderdeel, en dan gaat het voornamelijk om het begrijpen van de fysieke activiteit uitkomsten tijdens werkuren thuis en op kantoor. En dan gaat het op kantoor dan over Utrecht en Groningen. Om de discussie goed te laten verlopen, heb ik een aantal aandachtspunten opgeschreven het gaat om verschillende perspectieven er zijn daarom ook geen goede of foute antwoorden en omdat ik het gesprek opneem en ga transcriberen is belangrijk dat jullie niet door elkaar heen praten, en daarom wil ik jullie vragen jezelf te muten als je niet aan het woord bent, en verder vraag ik jullie je virtuele hand op te steken als je wat wil zeggen, en dan zal ik aangeven wie er kan gaan praten. Je hoeft er natuurlijk niet met elkaar eens te zijn. Het gaat immers over de verschillende perspectieven maar het is wel belangrijk om respectvol naar elkaar toe te zijn. En verder wil ik u vragen om de telefoons op stil te zetten en als je moet reageren, dan kan dat ook maar het liefst willen vragen om zo snel mogelijk mee te doen aan de discussie en mijn rol als moderator is om de discussie te leiden en niet om jullie statement te beoordelen. Jullie praten voornamelijk met elkaar, niet met mij. Ik zal af en toe wat vragen stellen om wat dieper er op in te gaan en omdat je fysieke activiteit wordt beïnvloed door de periode en de werkomgeving, denk bijvoorbeeld aan voor corona of tijdens corona wanneer je beperkt een aantal dagen naar kantoor mocht of helemaal niet. En denk dan ook aan de verschillen in fysieke activiteit in elke werkomgeving dus thuis of op een van de kantoren Utrecht of Groningen. En daarom is het belangrijk om duidelijk aan te geven om welke werkomgeving het gaat, thuis, of op één van beide kanten, Utrecht of Groningen. Nou ja, het doel van deze discussie is om de volgende vraag te beantwoorden: welke ruimtelijke, sociale en persoonlijke factoren ondersteunen en remmen lopen en traplopen binnen de kantoor- en thuiswerkomgeving dus eigenlijk, waarom lopen jullie nou zoveel zoals jullie doen. en we starten zo met vragen over de invloed van de indeling van ruimtes binnen de kantooromgeving op jullie beweging, en dan zoals ik eerder al aangaf gaat het dan om de locaties van en afstand tussen

werkplekken en faciliteiten. En aansluitend zijn er nog een aantal vragen die zich focussen op andere ruimtelijke factoren of sociale en persoonlijke factoren die beweging remmen of ondersteunen binnen de drie omgevingen. Dus thuis, kantoor in Utrecht en Groningen. Dan starten we nu met het eerste onderdeel en hier zien hoe die zowel de plattegrond van het kantoor in Groningen en Utrecht en deze heb ik verdeeld in zones werkplek groepen, maar ook faciliteiten waaronder toilet, keuken, vergaderruimtes, de trap, maar ook verkeersruimtes aangegeven als hal en nou ja, het grooste verschil dat je natuurlijk al kunt zien is dat Groningen bestaat uit twee verdiepingen en Utrecht uit voornamelijk een verdieping met enkele vergaderruimtes een verdieping daarboven en wat ik dan hebben gedaan, is deze zones verwerkt in een spatial graph. De zones en verbindingen daar tussen heb ik abstract weergegeven in deze spatial graph. De cirkels representeren dan de zones dus de cirkel bijvoorbeeld werkplek a of b of vergaderruimte a, en de lijnen daartussen representeren looproutes daartussen, dus hoe je van één werkplek naar een andere werkplek loopt. Nu, volgens mij klopt het dat jullie niet met muis zien bewegen, dus ik kan niet zo goed voorbeeld geven. Maar dan kun je bijvoorbeeld zien dat als je van werkplek a in Utrecht naar vergaderruimte a moet, dan moet je minimaal vijf verbindingslijnen afleggen en als je van werkplek a naar werkplek b dan hoef je twee verbindingslijnen af te leggen en zo kun je de afstanden tussen alle zones berekenen. Nou ja, via de spatial graph kun je onder andere dus de afstanden berekenen, maar ook de centraliteit van de zones en de centraliteit van elke zone is de gemiddelde afstand tot andere zones of bepaalde type zones. Dus je zou kunnen zeggen dat een bepaalde werkplek zo centraal gelegen is in het kantoor ten opzichte bijvoorbeeld van andere plekken of alleen faciliteiten of in het gehele kantoor. En wat dan opvalt als ik dan het kantoor in Groningen en Utrecht met elkaar vergelijken, is dat de diameter een stuk hoger is in Groningen en de diameter wil dan zeggen de grootste maximale afstand tussen twee zones binnen het kantoor. Dus als je van de ene kant van het kantoor naar de andere kant van het kantoor wil, dan is dat groter in Groningen dan in Utrecht. En wat dan opvalt is dat in de periferie van het kantoor in Groningen en dat is de rand van het kantoor zijn voornamelijk werkplekken gelegen, waar bij Utrecht voornamelijk de vergaderruimtes en wc's zijn gelokaliseerd. En dit zie je dan ook terug in de centraliteit van de werkplekken dat de centraliteit van de werkplekken in Utrecht ten opzichte zowel faciliteiten en andere werkplekken, liggen de werkplekken centraler gelegen in Utrecht dan in Groningen. Dat komt eigenlijk omdat je dat terug kunt zien, dat de werkplekken in Groningen vooral aan de rand gelegen zijn. Dus dat zijn de grootste verschillen in de indeling van ruimtes tussen beide kantoren. En wat dan ook opvalt is dat jullie aangeven veel meer te bewegen op het kantoor in Groningen dan Utrecht. Dit is dan het gemiddelde wat jullie hebben aangegeven. Dus in Groningen geven jullie aan bijna 35 minuten te bewegen tijdens werkuren en in Utrecht is dit 23 minuten. Een groot verschil. En nou ja, wat mijn vraag dan aan jullie is: is dit verschil in gelopen minuten nou representatief dat er zoveel meer wordt gelopen in Groningen? Of is het toeval vanwege het aantal lager respondenten dat dit afhankelijk is van wat uitschieters en heeft het verschil in indeling van ruimtes invloed op dat er meer gelopen wordt op het kantoor in Groningen dan op kantoor in Utrecht? Of zijn er belangrijkere reden die dit verschil veroorzaken? Denk dus bij de indeling van ruimtes aan de locaties, de centraliteit van locaties, maar ook over de afstand tussen bepaalde locatie, bijvoorbeeld de afstand tussen een werkplek en een toilet. Mocht je niet op beide kantoren gewerkt hebben, focus je dan vooral op aspecten binnen het kantoor die beweging remt of ondersteunt dus waarom beweeg je in dat kantoor juist veel of weinig? Wat zijn je bewegingsredenen of waarom zit je zo stil, ehm, [name participant 1]

00:08:48

Participant 1: Nou, ik zat te denken, ik ben dan alleen in Utrecht geweest maar ken natuurlijk de situatie in Groningen, maar Utrecht is haast een beetje, eh, de koffie en de wc liggen in het midden en voor iedere plek is het ongeveer even ver lopen om daarheen te gaan. En als je in Groningen boven zit,

ja, dan moet je helemaal naar beneden voor je koffie of thee en de wc weet ik eerlijk gezegd niet, maar je gaat dan al snel meer lopen dan als je hetzelfde wil doen in Utrecht. En ik denk of er nou wel of niet COVID is, dat dat niet uitmaakt voor de gemiddelde.

00:09:24
Moderator: Nee, het is niet zo dat bijvoorbeeld, het zou natuurlijk kunnen dat mensen zich dan op werkplekken vooral lokaliseren die dichter bij een bepaalde faciliteiten zijn, waardoor het zich weer opheft of zou dat niet zou kunnen zijn?

00:09:37
Participant 1: Mmm. Ja, dat weet ik niet. Er is één blok dat echt dichtbij, hier in Utrecht, dat echt dicht bij het koffieapparaat zit, maar de andere maak je niet zo heel erg veel uit.

00:09:52
Moderator: Ja.

00:09:52
Participant 1: Een paar passen meer, dat verschil zou het niet zijn.

00:10:00
Participant 2: Moet ik ook mijn hand opsteken als ik nu gewoon wil reageren.

00:10:04
Moderator: Het is niet nodig. We zijn met zn drieën dus dat gaat goed.

00:10:08
Participant 2: Maakt het reageren iets makkelijker. Nee, ben ik het mee eens. Ik denk het kan ook wel een stukje toeval zijn. Dat is misschien ook wel afhankelijk wie het vanuit Groningen hebben ingevuld, maar de lunch wandeling bijvoorbeeld zit hier niet bij, hè, dat is buiten dit?

00:10:23
Moderator: Dit is op kantoor, dus dat is eigenlijk van de start dat je begint met werken totdat je weg gaat op het kantoor, dus daar kan ook een lunchwandelen bij inzitten.

00:10:33
Participant 2: Want in Groningen is natuurlijk ook wel iets makkelijker om even snel naar buiten toe te stappen dan in Utrecht, in Groningen in principe de begane grond en en de eerste etage dan hebben maar de begane grond is eigenlijk het meeste meest gebruikt, en in Utrecht zitten we zitten we op de vijfde, dus dat, dat zou wel een drempel kunnen zijn.

00:10:54
Moderator: Ja en [name participant 3]

00:10:56
Participant 3: Ik wist niet dat die al klaar was. Ja, ik ben dan nu alleen in Utrecht geweest op kantoor, maar ik vind ook niet de ruimte om het kantoor heen laat maar zeggen, dus buiten. Is ook niet dat het je uitnodigt om in je pauze even lekker te gaan wandelen en ik weet niet hoe dat in Groningen is maar dat vind ik zelf ook altijd nog wel als je lekker effe buiten kan wandelen, dan is dat, dan doe je dat ook wel snel maar in Utrecht vind ik het nou niet echt een uitnodigende omgeving om in mn pauze naar buiten te gaan.

00:11:26
Moderator: En en waar ligt dat dan aan? Wat is een uitnodigende omgeving? En waarom in Groningen juist niet?

00:11:33
Participant 3: Ja, ik, ik ben dus nog niet in Groningen geweest, dus ik heb echt geen idee hoe het er daar uitziet maar ik vind het leuk als er bijvoorbeeld een parkje is, of dat je even, ja, een beetje meer natuur. Wat ik tenminste zie in Utrecht zijn het vooral veel kantoren en dat vind ik nou niet heel gezellig om dan even lekker te wandelen. Ik zou dan liever in de natuur gaan wandelen.

00:11:56
Participant 1: Daar moet ik wat over zeggen, want er ligt hier achter een heel groot park, wij gaan regelmatig hier in Utrecht lopen en in Groningen ligt ook een parkje aan de, aan ene kant is het allemaal parkeren en gebouwen, en de andere kant is ook een parkje dus voor allebei geldt dat: als je even moeite doet zeg vier, vijf minuten loopt, dan zit je echt wel in het groen, maar dat is hier ook alleen kennelijk weet [name participant 3] dat niet.

00:12:24
Participant 3: En dat vind ik altijd wel uitnodigend om wel meer te bewegen.

00:12:30
Moderator: Ja en binnen het kantoor?

00:12:34
Participant 3: Ja, ik beweeg eigenlijk voornamelijk als ik of met iemand even moet praten of als ik naar de wc moet of wat drinken wil halen en dat is eigenlijk ook wel.

00:12:43
Participant 2: Daar zit denk ik het grootste verschil in Groningen. Dat de vergaderzaal en het overleg zit boven. Oh nee, dat is niet waar, we hebben er beneden ook twee.

00:12:51
Participant 1: Drie.

00:12:58
Participant 2: Nee, nee, ja dat dat de printer staat boven, dat is het enige, maar hoeveel print je tegenwoordig nog dus het is, dan is het misschien toch meer toeval en net even afhankelijk van wie het hebben hebben ingevuld op kantoor, zeg maar.

00:13:12
Moderator: Ja, en iedereen geeft dan wel, veel mensen werken dan eerder beneden dan boven en heeft dat een reden, denk je of?

00:13:23
Participant 2: Je komt sowieso natuurlijk op de begane grond binnen, dus daar ga je denk ik ook het eerste zitten. Maar wat ik zei, ik weet niet wie in Groningen hebben meegedaan maar je hebt de, de vaste bezetting of de enigszins vaste bezetting. Die zit in principe ook beneden. En boven zijn het vooral flexplekken dus het het vult zich ook altijd van beneden naar boven, zeg maar als het druk is, dan gaan we ook boven zitten. Maar je hebt beneden heb je de koffie, de de, lunchtafel en dat soort dingen ook. En boven is het ook gewoon minder gezellig, vind ik, laat ik het zo zeggen.

00:14:02
Moderator: Wat veroorzaakt die minder gezelligheid dan?

00:14:05
Participant 2: Het is het is een beetje een donker weggestopt hoekje voor voor mijn gevoel.

00:14:10
Moderator: Ja, en waarop baseren jullie bijvoorbeeld je werkplek keuze? Is dat vanwege de indeling van ruimtes of ligt dat ergens anders aan?

00:14:25
Participant 2: In tijden van corona dan ligt het aan welke er nog niet gereserveerd is, voor mij in ieder geval, ehm, ik heb wel altijd een bepaalde voorkeur voor een plek, maar dat is ja, dat is gebaseerd op persoonlijk, wat ik een prettige plek vindt. Dat heeft iedereen voor zich denk ik wel een beetje.

00:14:43
Participant 1: Ja, dat denk ik ook en ik ben secretariaatsmedewerker en we hebben toch een soort van onze ongeschreven regel dat hoe flex ook wij toch op bepaalde plekken bij de ingang zitten. Dus die boek ik ook altijd gelijk als ik weet dat ik naar kantoor ga.

00:14:58
Moderator: Ja en wat [name participant 2], wat is voor jou een persoonlijke voorkeur voor een plek?

00:15:05
Participant 2: Ik, ik hou altijd wel een beetje reuring om me heen, dus ik ga meestal niet in de in de stilteruimte zitten.

00:15:13
Moderator: Ja.

00:15:14
Participant 2: En dan hebben we een aantal bureaus die die zit-sta zijn en daar kies ik altijd één van de zit-sta bureaus want dan kan ik af en toe ook nog even gaan staan, dus dat vind ik vind ik een fijne plek. Als je niet van van afleiding houdt dat je juist wat verder achter in de hoek gaat zitten, maar is beetje hetzelfde gevoel wat ik in in Groningen dus met boven hebben en in Utrecht de stilteruimte zeg maar dus het het kantoor helemaal links bovenin de hoek daar zit ik het minst graag, omdat het daar gewoon echt, dan zit je voor je gevoel helemaal afgesloten van van de rest. Het kan heel handig zijn, maar vind ik persoonlijk minder prettig.

00:15:54
Participant 1: Kan je net zo goed thuisblijven.

00:15:55
Participant 2: Precies.

00:15:56
Participant 1: Beter.

00:15:56
Moderator: En ehm, dus de indeling van ruimtes beïnvloed niet per se je werkplek keuze. Dan gaat het vooral over beneden en over dicht bij de ingang zitten. Of zijn er nog andere aspecten, faciliteiten waar je toch nog dichtbij wil zitten, of zijn toch die andere persoonlijke voorkeuren bepalender?

00:16:27
Participant 2: Kan natuurlijk vooral voor mezelf spreken, maar ik ik even naar de printer lopen. Dat dat is natuurlijk nooit, nooit de moeite en als die wat verderweg staat, dat is niet zon probleem. Koffie

halen, ja, dat dat is ook prima als dat iets verderweg is, dan dan loop je ook nog even. Dus het gaat voor mij wel echt vooral op is het een fijne plek in het kantoor, zeg maar qua gevoel dus heb je kan je misschien even naar buiten kijken, heb je zicht op op collegas weet ik veel wat dat vind ik denk ik belangrijker dan of het in de buurt van toiletten koffie, printen, uitgang, noem maar op.

00:17:01
Moderator: Ja, dus eigenlijk, in beide kantoren, zowel Utrecht en Groningen, zijn de afstanden niet dermate lang dat het je werkplek keuze beïnvloed?

00:17:10
Participant 2: Nee, wat mij betreft niet.

00:17:14
Participant 1: Nee, ik kan me niet voorstellen dat iemand dat is, überhaupt.

00:17:17
Participant 2: Nee, nou zijn onze kantoren natuurlijk ook niet in die zin heel groot. Dus je hoeft nooit ver te lopen. Het is verder lopen in Groningen, dan in Utrecht, en dat is zo. Maar het is allebei natuurlijk nog steeds niet ver.

00:17:30
Moderator: Ja, ja, dus omdat het in Groningen iets groter is, wordt niet minder vaak gelopen naar bepaalde faciliteiten, dus daardoor zou het kunnen komen dat in Groningen iets meer gelopen wordt?

00:17:42
Participant 2: Dat dat denk ik, ja.

00:17:43
Participant 1: Ja.

00:17:48
Moderator: Ja, even kijken. Heb je nog andere redenen die beïnvloeden van hoeveel je nou loopt op het kantoor en die verschillen tussen die twee kantoren?

00:18:02
Participant 1: Nee, ik zou het niet weten.

00:18:10
Participant 3: Ik ook niet.

00:18:10
Moderator: Dan wil ik voorstellen om naar het volgende onderdeel te gaan. Jullie hebben aangegeven meer te willen bewegen zowel op kantoor als thuiswerkdagen wat jullie hier in deze grafiek ook kunnen zien. En op kantoor in Groningen is dit ietsjes minder, maar nog steeds aanwezig. De drang om meer te willen bewegen in de toekomst. En nou ja, hier eigenlijk weer eenzelfde plaatje als voorheen dat er in Groningen een stuk meer wordt bewogen dan in Utrecht. Maar op beide kantoren wordt er meer bewogen dan thuis, terwijl je eigenlijk thuis de vrijheid had om meer te bewegen, bijvoorbeeld tijdens de lunchpauze.

00:19:00
Participant 1: Nou, ik heb daar wel een, voor mij geldt: als ik hier mijn koffie wil halen of naar de wc, dan moet ik veel verder lopen dan thuis, thuis werk naast het aanrechtblok. Dus drie stappen en mn koffie is er, nou vijf stappen voor de wc en ik ben weer terug. Dus dat scheelt dan op een dag.

00:19:18
Moderator: Ja. Dan ga ik even door naar deze slide nog en dat het ook dus heel erg verschilt tussen mensen of ze meer of minder bewegen op kantoor dan thuis, waar de ene het mee eens is dus zegt meer te bewegen op kantoor zegt de andere het helemaal niet mee eens zijn dus veel meer te bewegen thuis.

00:19:36
Participant 1: Grappig.

00:19:38
Moderator: En aangezien jullie aangeven meer te willen bewegen op kantoorwerkdagen als thuiswerkdagen en de fysieke activiteit ook verschilt tussen kantoor thuis en dat er veel verschillen bestaan tussen medewerkers, zou ik graag willen weten van jullie wat je nodig zou hebben om daadwerkelijk meer te gaan bewegen tijdens het werkuren. En is dat wat je nodig hebt thuis anders dan op kantoor? En is dat op het kantoor in Groningen anders dan op een kantoor in Utrecht, en denk dan aan persoonlijke, sociale, culturele, organisatorische en ruimtelijke factoren? Wie wil hier iets over zeggen?

00:20:17
Participant 1: Ik denk dat ik niet heb gezegd dat ik meer wil bewegen. Want ik, als ik naar kantoor fiets en terug ben ik er anderhalf uur per dag gaan bewegen. Dus ik denk dat ik één van de weinige mensen ben die heeft gezegd: nou, ik hoef niet meer of minder want het is goed zo.

00:20:33
Participant 3: Wat ik heel leuk vind wat ik nu tijdens mijn afstuderen merk ook bij andere organisaties is dat ze walking meetings hebben dus dat er speciale wandelroutes zijn uitgezet als je bijvoorbeeld een vergadering hebt van een half uur dan moet je de rooie route nemen als je een vergadering heb van een uur dan kun je de gele route nemen. En zo kan je dus terwijl je met elkaar aan het overleggen bent een wandelroute lopen waardoor je ook onbewust meer beweegt.

00:21:04
Moderator: En denk je dat dat bij alle vergaderingen haalbaar is?

00:21:08
Participant 3: Nee, dat zeker niet, maar ik denk wel als je bijvoorbeeld met zn tweeën even een overleg of even bij gaat praten dat je dat wel makkelijk kan doen.

00:21:20
Participant 2: Ik denk dat het een combinatie van van een heleboel dingen kan, kan en zou moeten zijn. Je kan heel laagdrempelig inderdaad door door een wandelroute ergens neer te leggen, maar je kan ook ook wat faciliteiten in je kantoren neerzetten, van een desk bike tot een tafeltennistafel bij wijze van je hebt natuurlijk heel veel, steeds meer kantoren, die ook nog een fitnessruimte regelen. Het zij in het kantoor, hetzij in de buurt en dat is ook een beetje een mindset natuurlijk, als je als je wil, dan ga ik wel meer bewegen op moment dat jij en ik zei het net al, zit-sta bureaus is ook een vorm van bewegen, moment dat jij wil staan, dat je dat je kan gaan staan. Je hebt ook vergaderruimtes waar je een tafel neer kan zetten, waar je aan kan staan in plaats van dat je gaat gaat zitten. Maar dat is voor iedereen tenminste laat ik het zo zeggen voor iedereen persoonlijk is dat volgens mij wel wel verschillend, wat wat iemand wel en niet fijn vindt. Dan heb je het ook niet met een maatregel voor iedereen meteen goed goed geregeld.

00:22:30
Moderator: Nee maar voor jezelf zou je dan zowel op Utrecht en Groningen mist dat nu die onderdelen die je net noemde?

00:22:38
Participant 2: De bureaus hebben we wel. Alhoewel ik in Groningen weet ik eigenlijk niet zeker of daar.

00:22:43
Participant 1: Weet ik ook niet. En we hebben die fit bikes nou bureau bikes. Is echt ... succes.

00:22:50
Participant 2: Ja nou dat noemde ik net. Ik vind dat zelf echt een enorm slechte uitvinding. Maar ik vind dat gewoon... Gewoon het kunnen staan achter je bureau is wel, naja als iemand wel fijn vindt, vooral gebruiken, maar

00:22:58
Participant 1: Niemand gebruikt dat ding. We hebben toch zo'n bureau fiets. Niemand. Het is geprobeerd, maar het werkt niet.

00:23:10
Moderator: En dat zijn dan vooral ruimtelijke factoren maar zijn er ook sociale of meer cultureel of organisatorische factoren die beweging remmen of faciliteren op kantoor of thuis?

00:23:23
Participant 1: Kantoor wel, als er bepaalde mensen zijn, daar ga ik vaak mee op vrijdag, een rondje lopen buiten, dus het is een beetje met wie je een klik hebt en die ook naar buiten wil en als er geen klik is, is die ook welkom natuurlijk, maar... sneller.

00:23:37
Participant 2: Ja het is niet zo en daar doel je denk ik ook een beetje op dat dat het niet geaccepteerd wordt als je naar buiten wil, in de organisatie. Ik denk dat iedereen toejuicht als jij zegt: ik ga een rondje wandelen, zeggen, prima, lekker doen, tot zo, dus dat dat wordt echt wel ondersteunt aan de andere kant het moet het moet natuurlijk wel in je in je planning ook passen en we hebben natuurlijk wel af en toe gewoon drukke dagen en dan dan is het lastiger om de keuze te maken om even een stukje te gaan wandelen, omdat het vaak toch wel iets langer duurt dan dat je normale lunchpauze misschien duurt.

00:24:11
Participant 1: Ja.

00:24:12
Participant 2: Vul ik hem even in.

00:24:14
Moderator: En korte momenten van beweging lukt dat dan wel?

00:24:17
Participant 2: Geef eens een voorbeeld.

00:24:22
Moderator: Nou, nu wordt er vooral gepraat over een lunch wandelingen, maar het kan natuurlijk ook dat dat loopje zijn naar de wc of de koffiezetapparaat of even wat wandelen binnen je, binnen je huis of binnen het kantoor.

00:24:36
Participant 1: Kan je geen beweging noemen.

00:24:40
Participant 2: Ah. Ik merk dat ik altijd gaan lopen als ik dan bellen ben, maar dat is een tik die ik en met mij veel mensen hebben.

00:24:50
Participant 3: Ja.

00:24:53
Participant 2: Ja, goed kijk, als je naar de wc moet, moet je naar de wc, dus dan dan loop je wel. Als je koffie wil, dan dan ga je koffie halen. Dus dat dat zie ik eigenlijk niet eens echt, dat dat ik gebruik het wel eens als ik weet even niet wat ik nu moet moet doen of even me zinnen verzetten. Dan loop je even naar de koffieautomaat of haalt even een glas water, want zoveel koffie drink je niet op een dag. Dus ja, daar gebruik je het wel voor, daar gebruik ik het wel voor, laat ik het zo zeggen.

00:25:18
Participant 1: Maar ja, het is bijna geen beweging te noemen, vind ik hoor, een paar stappen.

00:25:23
Moderator: En dan heb je het over thuis of op kantoor of is er geen verschil?

00:25:28
Participant 2: Nee, dat is bij beide.

00:25:31
Participant 1: Mee eens!

00:25:32
Moderator: En en en waarom denken jullie dat jullie zelf, of anderen thuis zo weinig bewegen ten opzichte van kantoor?

00:25:44
Participant 2: Ik denk wat wat [name participant 1] ook zijn, dat je het allemaal nog wat dichter bij de hand hebt dan dan op kantoor, dus dat je daarmee ook de beweging al een stuk minder hebt waar op kantoor misschien ook nog wel eens even naar een collega gaat om even een praatje te maken. Doe je dat natuurlijk ook thuis ook niet. Misschien dat je met met je huisgenoten iets iets doet of met je partner of weet ik veel wat, maar dat zal denk ik minder zijn dan op kantoor ook.

00:26:16
Participant 1: Ja.

00:26:17
Participant 2: Ik denk dat daar het voornaamste verschil in zit.

00:26:20
Participant 1: Ik heb, ik heb een hond en de enige reden dat ik zo nu en dan thuiswerker is dat ik voor de hond moet zorgen. Dus ja, dan wordt ik wel gedwongen om een rondje te doen, ergens op de dag. Dus dan dan dan wandel ik gelijk meer, dan beweeg ik meer, dan, is nog niet waar, want dan het het, het is toch nog minder dan het het fietsen op en neer naar kantoor. Maar het gaat echt vooral om in kantoortijd hè bij jou onderzoek?

00:26:46
Moderator: Maar dat kan ook een pauze zijn.

00:26:49
Participant 1: Ja, ja, maar thuis beweeg ik wel, de koffie, en wc, stappen zijn minder, maar ik moet altijd wel ergens op de dag dat beest uit laten, dus dat is...

00:27:02
Moderator: Ja, en ehm, zijn er nog andere factoren die jullie denken, die die beweging remmen of faciliteren thuis of op een van de kantoren.

00:27:17
Participant 1: Nee, ik zou het niet weten.

00:27:18
Participant 3: Ik ook niet.

00:27:19
Participant 2: Thuis vind ik sowieso lastig. Ja, ik denk op kantoor, maar dat is dat is meer een beetje in in de ontspanninghoek en en en wat wat zet je neer om los van beweging überhaupt even even je zinnen te kunnen verzetten daar heb je natuurlijk heb ik noemde tafeltennistafel maar iets in die in die geest kan natuurlijk wel helpen dat je even met een collega dom activiteit doet voordat je weer verder gaat.

00:27:41
Participant 1: Voetbalspel zou wel leuk zijn. Maar ja, dat is natuurlijk niet zoveel bewegen.

00:27:47
Participant 2: Daar krijg je altijd ruzie met de rest van het kantoor, omdat er zoveel lawaai maakt.

00:27:52
Moderator: En dat zijn vooral dus aspecten die je op kantoor zou kunnen verbeteren. Maar hoe zou je thuis meer kunnen gaan bewegen?

00:28:00
Participant 1: Dat is discipline.

00:28:03
Moderator: Kunnen je collegas daar nog een rol in spelen of is het vooral discipline inderdaad vanuit jezelf.

00:28:07
Participant 3: Ik denk vanuit je zelf.

00:28:11
Participant 1: Ja.

00:28:12
Participant 2: Ja.

00:28:14
Participant 1: Dan denk ik ook.

00:28:17
Participant 2: Ik merk ook wel bij mezelf dat het enorm van het weer afhankelijk is, want ik heb een

tijdje dat iedere keer tijdens de lunch wel even ging wandelen, maar als ik nu naar buiten kijk, dan denk ik nah vandaag sowieso niet. Los van het feit dat ik vandaag ook mijn hele dag vol hebt gepland, dus dat het hem sowieso niet zou worden. Daar heb je meteen ook al wel een punt van aandacht natuurlijk, als je de hele dag alleen maar overleggen hebt, dan is het ook al lastiger om te bewegen. Ik denk als ik vandaag mijn stappenteller zou hebben, dat ik op tien stappen komen. Dat is overdreven, maar wel echt echt weinig. Het is een stukje, misschien ook voor jezelf gewoon momenten inplannen.

00:28:53
Moderator: Ja, en en waarom gebeurt dat bijvoorbeeld nog niet? Hoe zou je dat kunnen doen om dat nog wat beter te regelen?

00:29:03
Participant 2: Ja, omdat je uiteindelijk toch een bepaalde productie wil draaien op een dag en op het moment dat jij gedurende de dag heel vaak ertussenuit uitstapt dan ben je ook gewoon later klaar aan het eind van de dag en kom ik aan het eind van de dag weer niet toe aan aan het sporten, bij wijze van of aan andere dingen. Dus dan, linksom of rechtsom moet de tijd ergens vandaan komen natuurlijk.

00:29:27
Participant 1: Ik zie wel bij diverse collegas als een afspraak inplan dat die echt bewust wandelen of lunchen en wandelende in hun agenda's geblokt hebben. Nou zijn dat afspraken met zichzelf die ik ook wat makkelijker aan de kant misschien mag schuiven. Maar er zijn mensen die dat in principe wel zon blokje door de week hebben staan.

00:29:47
Participant 3: Ja, ik ga ook wel één keer in de week met [name colleague] sowieso een uur wandelen, wel met de honden, maar wel echt dat we een uur samen weg zijn.

00:29:53
Participant 1: Leuk, ja.

00:29:53
Participant 3: Nee, je moet het inderdaad maar inplannen en er tijd voor hebben en maar de discipline hebben om het te doen.

00:30:01
Participant 1: Klopt ja.

00:30:02
Participant 2: Ik vond wat [name participant 1] net zei wel leuk, van dat is ook het eerste wat je waar je mee kan schuiven, omdat het toch een afspraak met iemand zelf zeg maar.

00:30:09
Participant 3: Ja.

00:30:10
Participant 1: Ja.

00:30:10
Participant 2: Want ik heb het zelf ook, ik heb ook iedere dag nu de lunch in mijn agenda staan, omdat ik op een gegeven moment merkte dat ik gewoon achterelkaar door aan het overleggen was en ik denk, ja, ik moet ook ergens nog een keer eten.

00:30:21
Participant 1: Ja, want normaal doe ik ook normaal, als je hier bent, doe je dat ook, maar als je dan thuis bent, dan ga je dat opeens minder snel doen. Dat is natuurlijk niet goed.

00:30:30
Moderator: En waar ligt dat dan vooral aan?

00:30:34
Participant 1: Hier wordt nog wel eens geroepen van: komen jullie eten en dan zijn dat wel een handjevol mensen die dan samen aan de tafels hun lunch te eten. En dit heb je thuis de meeste mensen niet, dan ga je gewoon door.

00:30:45
Participant 3: Ja.

00:30:55
Participant 2: Ja.

00:30:55
Moderator: Even kijken, hadden jullie verder nog wat aanvullingen of dat je zegt van nou ja, dat wil ik nog extra benadrukken dat het wel, dat dat wel heel belangrijk is, belangrijker dan andere onderdelen. Of dat je zegt nou dit, dit beïnvloed mijn beweging dus helemaal niet.

00:31:12
Participant 1: Nee, ik heb niks meer toe te voegen.

00:31:13
Participant 3: Ik ook niet denk ik.

00:31:14
Participant 2: Nee.

00:31:14
Moderator: Dan wil ik jullie enorm bedanken voor jullie deelname.

Appendix F - Reflection

Relevance

Management in the built environment

The graduation thesis “physical activity in the work environment” is part of the master track Management in the Built Environment (MBE) of the Master Architecture, Urbanism and Building Sciences (MSc AUBS) at the Delft University of Technology (TU Delft). The master AUBS is concerned with the built environment and the master track MBE, and especially Real Estate Management (REM), focuses on the interest of the end-user of the built environment both the organisation as well as the employee. Currently, health is a trending topic in society, organisations and real estate management. Since last year, this is strengthened by the COVID-19 pandemic. The graduation thesis focuses on the relation between the built environment and health, specifically on employees’ physical activity Besides, this is done in an integral approach including spatial, social-organisational and personal aspects with special attention to design which is also a characteristic of the master track MBE and REM.

Societal

Globally, one in four adults do not meet the physical activity recommendation. Insufficient physical activity not only influences health outcomes related to non-communicable diseases but also stress and work productivity. Even when adults meet the physical activity recommendation, time spent in sedentary behaviour can have negative health effects. Especially in the COVID-19 pandemic, the time spent in sedentary behaviour is more than normal and it’s harder for a lot of people to exercise in a situation where people spent more time at home. But in particular, at this time, people should do as much as possible physical activity. Because people spend a significant amount of time in the work environment and especially office employees’ spend a lot of time in sedentary behaviour and have low physical activity, the graduation thesis focuses on the reduction of sedentary behaviour and increase of physical activity in both the office building and the home work environment by replacing sedentary behaviour by incidental physical activity in terms of walking and stair climbing.

Improving the physical well-being of office employees is important for the employees themselves but also organisations and society. It adds value for an organisation as it positively contributes to for instance employee satisfaction, productivity, stress, absenteeism and creativity. Because office employees are a large part of society, a larger part of society works towards an active lifestyle. Hence, physical interventions seem more sustainable than other interventions that are aiming at enhancing physical activity.

The output of the graduation thesis i.e. developed method and preliminary results, can help organisations to enhance the physical activity wellbeing of its employees through the arrangement of spaces within the office building (design) and remove potential barriers of movement (i.e. spatial, social and personal) within both the office building and home work environment. Real estate consultancy firms can use the developed method and preliminary results to advise organisations on how to create a healthier work environment and thus a healthier workforce.

Scientific

In the first semester of the graduation process, a systematic literature review was conducted on the relation between the office environment and incidental physical activity. Only eight papers focused on the arrangement of spaces within an office building in relation to employees' incidental physical activity. This indicated that there is limited existing knowledge on this topic. The systematic literature review and especially the eight papers were used to identify the research gap and formed a basis for the research questions and used research methods. Moreover, due to the COVID-19 pandemic, also employees' physical activity within the home work environment was studied. The thesis provides advice for further use of the developed method in academic research on the topic "physical activity in the work environment" with the preliminary results as starting point.

Research approach

Original research plan

The findings of the systematic literature review formed a basis for the research method to answer the research questions. The strengths of previously used research methods are combined and resulted in the research method of this research. Besides, the limitations of previous studies are taken into account to develop an improved method. A cross-sectional study with an explanatory sequential mixed-method research design was applied. This consisted out (1) objectively measure the variables related to the arrangement of spaces by using office floor plans for a spatial graph, (2) objectively measure employees' step count or using a self-report survey if objective measures are not feasible, (3) measure covariates by using a survey, (4) observations of employees' movement patterns, (5) focus group about the spatial, social and personal barriers and facilitators for movement within the office. The aim was to study two to three office buildings or floors and about ten participants per case. The office buildings or floors needed to differ in the arrangement of spaces on at least one variable.

Because of the COVID-19 pandemic and the related uncertainties, an alternative research plan was set up. This plan focused on the most pessimistic situation: no employees at the office. In this research plan, employees' step count when working at home had to be compared with their step count when working at the office with a particular arrangement of spaces: does working at home influence employees' step count compared to working in the office with a particular arrangement of space? Also in this research plan, two or three buildings or floors with a different arrangement of spaces had to be compared. Objectively measuring the variables related to the arrangement of spaces by using the office floor plans for a spatial graph is still possible. Objectively measuring employees' step count is not feasible and thus a self-report survey needs to be conducted. The participants need to self-report their steps when working at home and in the office. As observations are not feasible anymore, the second sub-question needs to be answered by a combination of a focus group and in-depth interviews. Barriers and facilitators of movement when working at home and the office will be identified.

Changes in the research plan

Although we did not expect this to happen, the "most pessimistic situation" was the case at the time of executing the research plan. As a result, the COVID-19 pandemic was of substantial influence on the research approach and led to various changes in the research plan. While this had negative effects on the research, it also provided opportunities such as studying the home work environment as discussed in the previous chapter. Besides, more types of measurement were used to answer both sub-question one and two than initially planned. This resulted in a rich amount of information which strengthen the findings. Below, the most important changes compared to the original plan are shortly described. Reflection on the finally applied research plan and results can be found in the report itself under chapter 4. In chapter 4, the strengths and limitations of the research are described in detail and recommendations for further use of the method and results are discussed.

Step 1 did not change, but selecting two or three buildings or floors which significantly differed in the arrangement of space was not possible. It was hard to find organisations that were willing to participate and as a result, only the two organisations which wanted to participate did participate.

In contrast, step 3 did change although this was not included in the alternative research plan. The goal of the survey changed partly and became step 2 because of the new goals of the survey. Still, the covariates were measured by using a survey, but also other variables were measured in the survey. This to answer sub-question two with quantitative data. Not only the variables that were studied before according to the systematic literature, but also new variables were included or the way how these variables were measured was improved (i.e. job role). These new variables and improvements derived from other literature or are based on common sense. Especially because the home work environment was not studied before in this way, and also not the influence of a pandemic like COVID-19. There were survey questions about spatial, social and personal characteristic to identify factors that support and inhibit movement within the work environment. Questions about employees' physical activity within the office inbuilding were also included as this couldn't be done objectively. Besides, the plan was to use the answers of participants to select participants for the next research steps: objectively measure employees' step count at home to be able to study a diverse group of employees as not more than 25 employees could wear an activity tracker and log their movement patterns and reasons for movement. Unfortunately, it was not possible to hold a selection process as there was a limited amount of participants. All participants who wanted to participate were invited to wear an activity tracker and log their movement patterns and reasons for movement for five consecutive workdays. Finally, the survey included the informed consent form. Because of including the informed consent form and planned selection process, the survey was held before the research step with the activity tracker and the logbook.

Step 2 did change and became step 3 as just explained, however not the way as in the alternative research plan. The physical activity within the office environment was as explained measured by a self-report survey. Yet, the physical activity within the home work environment was objectively measured. In this way, the method (activity tracker and logbook) could still be tested. First, this step consisted of solely measuring employees' physical activity objectively. In the end, this step also included a logbook. Participants logged their movement patterns and reasons for movement to identify factors that support and inhibit movement within the work environment. Whereas the second sub-question initially had to be answered by only qualitative research (observations and focus group), the logbook was used to answer this question by quantitative data.

Unfortunately, observations of employee's movement were not possible due to the COVID-19 pandemic. Fortunately, the logbook was a good alternative. Yet the lack of observations was an important limitation of this research as described in chapter 4 of the report. The focus group remained the same and was extremely valuable because of the missing observations. This was the only qualitative data that could be used to understand the quantitative data.

As various types of personal information were gathered in this research, the research had to be approved by the Human Research Ethics Committee (HREC) and required a sound data management plan. The content of the HREC application changed multiple times due to changes in the research plan as a result of the COVID-19 pandemic. Repeatedly the needed type of data was changed.

Mainly due to the adaptations in the research plan, improvements of method parts, and difficulties to find organisations and participants the research took longer than expected. Besides, due to the adaption of the research plan, approaching organisations was paused.

Personal

Towards P2

Already at the start of the graduation process, I experienced that it was hard to combine with other courses. Because you chose your graduation topic, you only want to focus on graduation and are less motivated in doing other courses. Besides, shifting between courses meant that I had to question myself “what was I doing”. This hindered the processing of a large amount of information from the literature. I had to reread parts before continue working. It was personally difficult to keep an overview of all the papers during the systematic literature review. In addition, it took some time to know how to summarise the papers and structure the information to create a logical storyline within the report. Also, for this reason, I had to read the papers multiple times. Although the systematic literature review was time-consuming and intense, it was very helpful in for instance structuring the information, narrowing down the research topic, determine a research gap and related research requestion and method. Based on the systematic literature review, a substantiated research plan could be developed. Looking back, I am very happy that my main mentor proposed to review the literature systematically and learn me how to do this as I never did this before.

Accordingly, although I learned things about the product, the most important things I learned from my mentors were about the graduation process “how to do research, what steps should I follow, how to conduct a systematic literature review, what type of information do I look for, how to strengthen my research plan”. This indirectly influenced the things I learned about the product.

The process seems especially hard due to COVID-19 as it significantly influenced the amount of contact with other graduation students for short discussions and questions in between working. This would lead to new insights which help to prevent to get stuck and improve the research. I also missed references in terms of product and process to know if you are on track. Working at home decreased my productivity and efficiency despite my motivation.

Towards P4

Also towards the P4, the graduation process was hard due to the limited amount of contact with other graduation students for discussions and questions. Especially during the analysis, I missed the contact with other students for feedback. I lost myself in all the produced data as I did towards the P2 concerning the systematic literature review. Although my research questions were clear beforehand when I looked at the amount of data I did not know what to analyse anymore. It was a long learning process to know what to analyse and what not. Where to draw the line and when to propose analysis for further research. I found this even harder as the number of cases and participants was limited and therefore had to focus on mainly the method. I did not know how to tackle the small sample when analysing, reporting and interpreting the findings. What can I say, and what not. Especially as I did not reach out to my mentors and fellow students that often the process became harder. Besides, instead of taking a break to process the information to look at the big picture, I studied even more and as a consequence, I got lost in details. Also starting very late with writing the report, did not help to look at the bigger picture and get a good overview. Luckily, my mentors helped me to prioritise as they did still see the bigger picture that I didn’t anymore. Next to the discussed reasons for the delay (see research approach), the analysis also took longer than expected because of the just described difficulties. But also because I underestimated the analysis of the logbooks and had to specify the research method after the P2. In general, towards the P4, all elements took more time than expected and although a sound research plan was set up, the research did not go smooth.

While the COVID-19 pandemic had negative effects on my graduation process, it also allowed me to learn to manage changing circumstances. I had to adapt the research various times and think about alternatives and opportunities. The method (parts) had to function in all the possible circumstances: when there are no employees at the office and when there are some. And because of the difficulties finding organisations that are willing to participate, I became better at approaching organisations. The strategy for approaching organisations changed over time and different

information documents were made. Besides, I learned to conduct a diversity of measurement types: from quantitative (activity tracker, spatial graph, survey, logbook) to qualitative (focus group) measurements. Also, because of the private data, I learned how to tackle privacy issues (HREC).

Towards P5

In the final weeks of the graduation process, I want to focus on the visual and textual presentation of the research.