

Utilizing the nature connection in the work environments

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<p>The objective of the thesis was to discover how the nature connection currently occurs and actualizes in different workplaces. The purpose was to study what concrete actions were done in terms of the nature connection at workplace context by both employer and employee. Moreover, the intention was to find out, whether the actions done affected to the experienced wellbeing at work.</p> <p>The theoretical framework of the study was based on the literature about the beneficial effects of natural environments, the relationship between humans and nature and the concept of biophilia and biophilia hypothesis, where the key sources used included the Forest medicine by Li (2013), Shinrin Yoku-The Art and Science of Forest Bathing by Li (2018) and Terveysmetsä by Leppänen & Pajunen (2021). Moreover, the framework was based on the concepts of occupational health and holistic wellbeing at work, as well as the utilization of nature elements in the interior design to improve the wellbeing in the workplace context.</p> <p>The study was conducted using the quantitative research method and survey as a data collecting tool. The public weblink for the online survey was shared to the target group, which was limited to office workers. Therefore, the link was shared among commissioners and in the network of the author, as well as in several Facebook groups. The survey link was opened on 28 of May 2021 and closed 18 of August 2021 and 138 responses in total were received. Survey results were analysed with Webropol.</p> <p>The obtained results of the survey indicated the occurrence of nature connection in majority of workplaces, however comprehensive and systematic approach to consider the issue was mainly lacking. The findings showed that the natural elements used at work and the measures enabling the connection with nature during workday positively affected the wellbeing of the employees. The results also indicated the key elements in forming the nature connection at work currently are natural light and living plants. Lastly it was found out that the nature connection was mainly wanted to be strengthened by the employees.</p> <p>In conclusion, actions to strengthen the nature connection in the workplace context may be beneficial in terms of the wellbeing of the employees. Therefore, more encouragement for exposure to fresh air and nature environments, for example during the breaks is needed. Such practices contribute to better coping with cognitively demanding tasks and prevent mental fatigue.</p>	
Keywords Nature connection, wellbeing, occupational health, work environment, biophilia	

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1 Introduction

Over the past decades, research data on health and well-being has grown exponentially. Consequently, perceptions of what health and wellbeing are, what they consist of and what is really good for us, have also been updated many times along the way. Alongside old beliefs, a number of new alternative perspectives and ways of working have been born, thanks to rapidly evolving technology and faster access to information, for example. The concept of holistic wellbeing has also begun to be outlined in a new way and has expanded the concept of health.

The role of nature, its impact and importance on health, has also begun to be increasingly recognized and offered as part of our wellbeing palette. It is true that nature does good for us. The subject has been examined in countless different studies and the results obtained showing time after time, how even a short exposure to natural environment brings positive changes for us. One major driver of research on this subject has been the Biophilia published by Edward O. Wilson in 1984 and the biophilia hypothesis by Kellert and Wilson 1993, suggesting that being part of nature, evolving and living there for millions of years, it is justified from a biological point of view, why nature and time spent there, does good for us. It is familiar to us, for it is our home. (Wilson 1984; Kellert & Wilson 1993.)

This recently increased knowledge about the health and wellbeing and its broad positive effects, however, has not appeared to correlate with our experienced well-being by increasing it, but we are currently suffering from health problems such as digestive problems, allergies, insomnia and depression, more than ever (Leppänen & Pajunen 2021). Problems such as coping at work and mental health problems have also increased exponentially and ever younger suffer from e.g., burnouts. Based on the Finland's largest healthcare service company – Terveystalo, and its patient data, in 2017 the most common reasons for long sick leaves were reported to be; musculoskeletal disorders as well as mental health problems. (Terveystalo 2018.)

At the same time, it is fact that we spend increasingly more time indoors - in apartments, in offices, in schools, in cars, in gyms, in supermarkets, to shortly put, in isolation of our original home, nature. The aim of this thesis is therefore to critically examine our prevailing relationship with nature but also, how could we extend this relationship to exist also indoors, where we spent more and more time. This thesis focuses on viewing the nature connectedness in the workplace context, where we spend an average of 36 hours per

week, meaning 144 hours per month, and as many as 1,872 hours per year, corresponding to about 78 full days (Akrenius 2019). Therefore, it is not all the same, in what kind of environment we work in and what are therefore the accumulated consequences on our health.

The thesis topic is contemporary as the time spent in nature and outdoors is rapidly decreasing while the time spent indoors increases. The accelerated urbanization and the continuous development of technology are just few reasons to mention affecting this comprehensive change, that constantly weakens our nature connection. Therefore, the main aim of the thesis is to find ways to achieve and strengthen the nature connection also indoors and especially in workplaces. This thesis has been conducted to the commissioner, to Oivallusvaara, which work in the field of occupational health, wellbeing and re-connecting with nature.

1.1 Purpose and delimitation

The purpose of this thesis is to study, how the nature connection currently occurs and actualizes in different work places and employees' everyday life at work. Moreover, the aim of the study is to find out whether the employees are satisfied with the current conditions in terms of the nature connection and how the situation is possibly wanted to be adjusted. Further, the key elements strengthening as well as weakening the current realization of the nature connection are desired to be determined.

Therefore, the desired end result of the study is to produce new and useful information for the commissioner, as well as deepen the existing knowledge and expertise about the subject. The optimal end result of this work can be seen useful for different areas of businesses, by bringing new and useful information to them. These areas of businesses are for example; occupational health, health and wellbeing, biophilic- and green design as well as tourism industry and especially experience service providers and activity organizations. Moreover, based on the results, it is possible for the commissioner to utilize the information, for example, as follows;

- To better identify the needs and wishes of existing customers and improve responsiveness
- To better identify new potential customer segments and a more profound understanding of their needs
- Possibilities for new ideas to be implemented together with existing customers
- Identify new potential partners and stakeholders

- Improve the existing products and services and expand of the field of action
- Design and execute new product and service ideas

The above-mentioned possibilities can furthermore be expected to both expand commissioner's field of business as well as benefit it financially.

Achieving the goals set and desired outcomes, requires familiarizing with the most relevant topics in terms of the research problem and the research topic, both in theory and in practise. Therefore, the theoretical part of this research consists of two main parts, out of which the first part views the concept of nature, relationship between human and nature, concept of biophilia and the beneficial effects of nature and nature elements. The second theory chapter in turn focuses on the concept of occupational health and wellbeing at work and the utilization of nature elements and green design in office interiors.

The thesis is moreover limited to examining the issue from the perspective of employees working in Finnish offices. The decision made is based on the fact that the nature connection of the persons working indoors is weaker compared those working in the outdoors or in the nature. In addition, regardless of the type of office, the office environment can be considered to be somewhat easily adaptable to support the nature connection better, with the help of biophilic- or green design, for example. In this context, the office comprises an indoor working space such as an open-plan office, a closed office, or a multi-space office and the term office worker to comprise persons working in this type of environment.

The delimitation of the thesis is necessary first of all, to ensure the accumulation of a sufficient however manageable amount of data. In addition, the delimitation of the target group considered, allows the amount of data to be realistic in relation to the thesis schedule as well as the limited data analysis time.

1.2 Research problem and methods

The research problem is to find out the current state, quality and implementation of the nature connection in Finnish offices from the perspective of employees. The research questions listed below are derived from a research task selected with the commissioner, which purpose is to produce new information on the topic in question. The gained information in turn can be used extensively to benefit both the commissioner's business and the field of health, work-wellbeing.

The research questions derived from a research problem are as follows;

- What are the key elements for forming the nature connection in the office environment?
- How the quality and quantity of the nature connection is perceived by the office workers?
- What are the perceived effects of the nature connection on wellbeing at work, in the opinion of the employees?
- Is the nature connection in the office environment perceived to be sufficient?
- What are the desired changes in terms of nature connection in the office environment?

In order to be able to solve the research problem and answer the research questions set, the suitable methodology must have been chosen. The research method of this thesis has been chosen as a quantitative research method. This type of method has been chosen as the aim of the research is both to survey the prevalent situation as well as strive to describe it generally. Therefore, in this context the desired result is to define, to what extent the nature connection is currently realized and what is the quality of it and further create an overview of the situation in different work places. Therefore, a survey is selected as data collecting method and will be created and analysed with Webropol program. The survey is chosen as a data collecting method, as it enables of a sufficiently large number of respondents to be reached, and further to draw generalized conclusions about the current existence of the nature connection in different workplaces. Additionally, survey as a data collection method allows targeting more diverse group of respondents in a short period of time, compared to e.g. interviews.

1.3 Theoretical framework and structure of the report

This report consists of seven main chapters and further their subchapters. The first chapter is introduction to the aims and purpose of the research. Additionally, this chapter presents the research problem and the research questions derived from the problem, as well as presents the used methodology and data collecting tools. Finally, the theoretical framework is defined and the key models and theories - on which the thesis is based on, are presented.

Chapters 2 and 3 forms the theoretical part of the thesis and reviews the most relevant literature, theories and models in terms of this thesis topic. Chapter two examines the relationship between man and nature, the concept of biophilia and biophilia hypothesis and

the diverse positive effects of nature for promoting and maintaining the health and wellbeing of people. The key sources used in this chapter are for example the “Forest medicine” by Li (2013), “Shinrin Yoku – Japanilaisen metsäkylvyn salaisuudet” by Li (2018), “Metsän parantava voima” by Williams (2017) and “Terveysmetsä” by Leppänen & Pajunen (2021). The chapter three in turn reviews the concept of holistic work wellbeing and the significance of nature connectedness as a part of working environment reviews numerous studies on the subject.

After the theory chapters the methodology of the thesis is presented in more detailed in the chapter 4. At first in this chapter different research methods and differences between them are examined in theory, after which the methodology used in this thesis is presented and justified. Research process, timetable of the thesis and encountered problems are additionally described in this chapter. In chapter 5 the results of the survey are presented. Chapter 6 in turn presents the conclusions drawn from the results considering the significance of the results in practice and in relation to the theories presented in chapters 2 and 3. In addition, this chapter provides answers to the research problem and research questions. In this chapter suggestions for putting the results into practice are given to the commissioner. Finally, in chapter 7 reliability and validity of the thesis are discussed. Furthermore, the success of the thesis in general and the learning process are examined in this chapter.

1.4 Presentation of the commissioner

Oivallusvaara is a Finnish company that provides welfare services in the form of Forest Clinic (Metsävastaanotto ®). Forest Clinic is designed to promote workplace wellbeing and occupational health by utilizing the natural environments. The activity is organised by healthcare professionals and targeted especially for small work communities including maximum 15 persons. Forest Clinic can be used for many purposes and utilized in many different ways, when activities to promote wellbeing in the workplace are desired. It can be used as a solution when arranging wellbeing days, work days or lectures for work teams or when the boost of team spirit or creative and new ideas are needed. The main aim is to utilize the natural environment in terms of recognizing the variants affecting one’s wellbeing in order to improve the functioning of the body and mind. (Oivallusvaara 2021a.)

The activities are strongly based on a wide range of scientific studies and the results obtained from them. The activity is always design and guided by healthcare professionals.

Oivallusvaara works in the industry of occupational health and wellbeing, utilising the principles of Green Care activity and health benefits of natural environments. In addition, Oivallusvaara's operations cover the organization of various nature-related courses and excursions. (Oivallusvaara 2021b.)

2 Humans and nature

In this chapter the concept of nature as well as the relationship between human and nature are discussed. In this chapter, the concept of biophilia and biophilia hypothesis is moreover defined. Lastly the beneficial effects of nature in terms of physical, social and mental wellbeing are examined.

2.1 What is nature?

The question of what we mean when we talk about nature may seem an easy question, but the concept is actually much more, layered and complex than one might think at first glance. The question of nature is strongly tied to the experiencer, to time and to place, therefore meaning different things to different people in different times. This can be noticed, when looking the evolution of the concept of nature through different eras. In ancient Greek, nature was described as something infinite and eternal, but also a condition for good human life. The word *physis* (φύσις), was used to describe “nature” that was translated as “*natura*” in Latin. According to Aristoteles book of *Metaphysics*, the word *physis* was used to describe; 1. The birth of beings 2. The origin of growth and development of beings 3. the driving force of all beings 4. The material of beings 5. The substance of beings. Moreover, Aristoteles considered the nature (*physis*) and the man-made laws (*nomos*) to belong together, rather than being opposites of each other. (Kotkavirta 1996, 1-7; Sihvola 1996, 7-31.)

In the Middle Ages, Christian theology, on the other hand, strongly shaped the concept of nature, centring the God to be the one that was behind of everything. Where in ancient times the world was viewed as infinite and eternal, and where gods were seen as part of nature or even as nature, in the Middle Ages God became the one who had created everything — including nature. The relationship with nature has also simply meant living in nature and living from nature. Therefore, the relationship with nature was based on respect for the fact that it provided the necessary shelter and food but also to an understanding of its great power. Agriculture, trade and urbanization are all not only indications of man's ability to manipulate his environment but also indicates the need to “escape” of living “at the mercy of nature”. (Työrinoja 1996, 31-35.)

In the 18th century, the beauty of nature and landscapes was recognized in a new way and nature became a popular theme among painters and writers. Especially wild and dangerous nature, was the object of admiration. Nature was also strongly seen as a counter-balance to work and urban life, to which excursions were made but also to be something that wanted to be protected. (Sironen 1996, 10-123.)

Today we have more knowledge about the world around us and therefore also about nature than ever before. Yet it seems that the concept of nature cannot be explained comprehensively. At 21s century, the definition of nature, according to Cambridge dictionary (2021) goes as follows;

“Nature is all the animals, plants, rocks, etc. in the world and all the features, forces, and processes that happen or exist independently of people, such as the weather, the sea, mountains, the production of young animals or plants, and growth.” (Cambridge dictionary 2021)

Moreover Collins (2021) offers very similar approach defining nature as “all the animals, plants, and other things in the world that are not made by people, and all the events and processes that are not caused by people.” (Collins 2021)

According the above definitions given, nature refers to something that does not include human activity or man-made environments. Instead, it includes concrete, living and non-living things such as animals, plants and rocks, as well as phenomena of forces and processes that occur naturally.

However, similarly as the concept of nature the question of whether human with its actions are part of nature or not, is strongly dependent on the perspective from which it is viewed, and can therefore vary between different fields of science. From the point of view of chemistry and physics, everything can be seen as nature, as everything consists of the same elements regardless of whether it is man-made or not. From a philosophical point of view in turn, man has been shown to be both one with nature and separate from it or even above it. Referring to Michael Pollan's words about nature in the book *Mielen Luonto* by Kirsi Salonen, Pollan describes nature as follows;

“Nature is not only there somewhere “outside”, but it is also here inside. The apple and potato, the garden and the kitchen are nature, as is the human brain, which reflects the beauty of the tulip or the effect of cannabis flower smoke. I would guess that when we start to see such places belonging to nature as we now see wild nature, we will understand our own place in nature much better than we do now.” (Salonen 2010, 21.)

The many definitions given, seems in many cases define nature as the world around us, where the clearest difference between different definitions is whether human is part of the concept or not. Therefore, when we talk about the concept of nature, we are talking not only about tangible or intangible, animate or inanimate nature but also the ways to understand the world around us, the concept of life and man’s place and role in it.

2.2 Human in nature

Like the concept of nature also the relationship between human and nature is layered. When talking about the man’s place and role in the nature and its relationship to it, one can talk about the concept of nature connectedness. With the concept of nature connectedness or nature connection, it is referred a stable individual feature that is strongly influenced by the amount of time spent in nature. The concept contains many features similar to personality-defining and starts with an understanding of the concept of nature, what it is or what it is not. At its simplest nature connectedness can be seen as love of nature or emotional affinity towards nature. Based on the latter definition, the natural connection can be seen to be determined by how strongly or to what extent one perceives himself to be a part of nature, or nature as part of one’s identity. (Capaldi, Dopko & Zelenski 2014.)

According to other definition given by Schultz, the nature connection consists of three components that are; the cognitive component, affective component and the behavioural component. With the cognitive component it is described how integrated one feels with nature and plays the key role in the formation of nature connectedness. The affective component in turn indicates one level and sense of care for nature, while the behavioural component refers one’s commitment level to cherish nature. (Schultz 2002, 62-78.)

According to the common notion, nature connection has been thought to have evolved as an evolutionary result, as a result of time spent in nature. In order to understand the relation between human and nature more deeply it is beneficial to have a short overview of

history. It is clear that the history of nature reaches further back than the history of human, but to understand the scale between these timelines, may be beneficial.

Therefore, when viewing the timeline closer, we can see that formation of the planet earth, started approximately 4,7 billion years ago simultaneously with other planets. However, at this point the planet earth was not the blue planet as we know it today, but still in drastic change, covered with molten magma. Took a billion years, before the earth was suitable place for first simple bacteria to grow and the emergence of the DNA is dated to 3,5 billion years back. Climate wise, the radical change happened 2,5 billion years ago, after the onset of photosynthesis. In this phenomenon in which algae were able to combine water and carbon dioxide into sugar using sunlight as an energy source, oxygen was formed as a by-product. The increased oxygen levels enabled the birth of many organism both in the seas and on land and 400 million years ago the first forms of fishes and plants were born. The first animals rose to land 300 million years ago and were invertebrates and amphibians. The era of great dinosaurs was 210 – 65 million years ago, while the first primates evolved 75 million years ago. (Turunen 2018.)

The story of humankind in turn, started after the great apes separated from the other apes 35 million years ago. A common form of human and chimpanzee lived in Africa about 7 million years ago, where the most of human development has taken place. A man rose on two feet 4 million years ago and learned to use tools 2 million years ago. The modern man (*homo sapiens*) we present, evolved in Afrika 300 000 ago. (Kuisma 2019.) Aforementioned short review of history and especially the history of humankind provides a scale for our time in nature. Such an evolutionary-based perspective is also foundation for most of the theories, to describe why we experience strong connection with nature and also with other beings and is called, biophilia.

2.3 Biophilia and biophilia hypothesis

The word biophilia is originally generated by German-American humanist-philosopher and developer of psychoanalytic doctrine Erich Fromm. According to him the word biophilia means “the passionate love of life and of all that is alive” (Rogers 2019).

The opposite concept of biophilia according to Fromm is necrophilia, or love for death. Sigmund Freud, a well-known Austrian doctor and researcher, has also taken a stand on the concept of biophilia. Where Fromm thinks biophilia is a stronger trait than necrophilia,

according to Freud they are equally strong and biologically innate traits. (Räsänen 2020, 46-54). Although the concept of biophilia was discussed by Fromm and Freud already 1960s, the term became known in the 80s by biologist and ethologist Edward O. Wilson. Like Fromm and Freud, according to Wilson the concept of biophilia means “the innate emotional affiliation of human beings with other living organisms” (Green 2010).

Wilson introduced the biophilia hypothesis in his book “Biophilia” in 1984, according to which the inherent tendency to connect with nature is due to the fact that our species has evolved in nature. (Rogers 2019.) As mentioned earlier, our time in nature covers 99% of the existence of our species, which means that our evolutionary development has practically taken place entirely in the natural environment. This is also the base for biophilia hypothesis according to which this is the reason why we still feel nice and calm in the nature and why the benefits on our health can even be measured. Therefore, it also justifies why we still can find certain environments more favourable over another. Environments providing food and shelter such as places with diverse plant and animal species and enough vegetation, or places nearby water are still perceived beautiful and attractive, as they once were vital in terms of survival. (Heiskanen 2017.) Moreover, according to the hypothesis, biophilia is not only based on a genetic basis, but also common to all mankind, meaning the positive effects of nature are as effective to all.

2.4 Beneficial nature

Despite we have spent centuries trying to fight our way out of the nature in order to live apart from it, in the end, we are however inseparable part of it and it is part of who we are. Moreover, although our perception about the concept of nature and our relationship with it has changed and is constantly changing, the fact it has positive and beneficial effects on us in multiple areas of life, has not changed. The beneficial effects of nature are not the new subject of study, however as the ever-accelerating urbanization and destruction of natural habitats for economic use reduces the surrounding natural environments and reshapes our conception of it, the many positive effects of nature – especially the beneficial effects on our health and wellbeing, have begun to receive more attention. In order to claim that nature has numerous positive effects on our health, it is needed to first find out what the concept of health includes. Health does not refer only the absence of diseases, but encompasses a much larger whole. According to the World Health Organisation health refers to complete physical, social and mental well-being (WHO 2006, 1) however as the concept of health is flexible and the experience of health is individual also other dimension

for concept of health are presented. These other definitions take for example emotional, spiritual, environmental and occupational dimensions into consideration (Roger Williams University 2021).

The positive effects of nature for health, are recognized and studied widely especially in Japan. As a result of this pioneering research the concepts of Forest medicine (Shinrin Igaku) and Forest bathing (Shinrin yoku) have emerged. Forest bathing or Shinrin-Yoku in Japanese, means literally bathing in the forest environment and sensing the surrounding forest with all five senses. It does not require physical activity or sports, but simply being in nature. (Li 2018, 1-15) Forest medicine in turn is the science based on the healing properties of nature. It is still new form medical science that belongs to the category of alternative medicine. When the Japanese Society of Forest therapy was established in 2004 and The Ministry of Agriculture, Forestry and Fisheries of Japan started to investigate the therapeutic effects of forest, also the evidence-based research about forest medicine was able to start. Nowadays with the help of these parties, there are numerous studies conducted and therefore a lot of information on nature's therapeutic effects both on human physical, mental and social health. (Li 2013, 3-10.)

2.4.1 Benefits on physical health

The numerous studies conducted about Forest medicine and shinrin-yoku, has made many of the health effects of nature visible, showing the benefits of nature both physical, social and mental wellbeing. According to Mitchell (2013, 189-190), one of the nature's healthy effect lies its potential to offer an environment that attracts and encourages to physical activity, which is known to have numerous positive effects in maintenance and promotion of health (De Vries & al. 2010, 205-243). Moreover, the sedentary lifestyle and urban environment that are everyday life especially in developed countries, does not encourage us for physical activity as effectively as natural environment and green areas (Mithell 2013, 187-199).

Studies conducted by Yoshifumi Miyazaki, a university professor, researcher and the deputy director of Chiba University's Center for Environment, Health and Field Sciences, and Juyong Lee the Assistant Professor Hankyong National University Anseong, was found that unhurried walking in nature decreased participants' cortisol levels by 12% more effectively than those walking in urban environment. Additionally, the activity of sympathetic

nervous system was decreased 7%, blood pressure 1,4% and heart rate 6% more compared to the group walking in urban areas. Moreover, people participating in the experiments were interviewed at the end of the experiment, in which subjects reported improved mood and less stressful and anxious feelings. (Miyazaki, Lee, Park, Tsunetsugu & Matsunaga 2011.) Increased blood pressure, cortisol levels and heart rate, and sympathetic nervous system activity have been associated with the activation of a stress response which, when chronic, can cause numerous health problems weakened immune response and promote diseases such as heart diseases, diabetes, Alzheimer or depression. (Kim, Cheon, Bai, Lee, & Koo 2018.) Therefore, the findings of Miyazaki and Lee about the nature's healing effect, may be crucial in the treatment of diseases like this.

Similar measurements result has been reported in many studies, showing a larger and faster decrease in blood pressure, a decrease in heart rate and a decrease in noradrenaline levels in people, who took a walk in the forest instead of the urban environment (Li & al. 2013, 117-135; Lee & al. 2014). Furthermore, according to Finnis study exposure to a diverse microbiota is important for human health. In other words, exposure to a diverse environment enriches the microbiome of the human body, strengthens the immune balance and protects against disease. Therefore, urbanization and therefore exposure to poorer microbiota has caused the more common occurrence of inflammatory diseases and allergies. (Haahtela & al. 2017).

2.4.2 Benefits on social and mental health

In addition to nature's beneficial effects on physical health, nature has beneficial effect on our social health. Social interaction has been shown to be beneficial to our health through social support, -integration, - interaction. (Cohen 2004, 676-684.) Studies show that natural environments promote social interaction and co-operation and make it easier to meet new people. This is believed to be explained by the potential of the natural environment to provide an equal environment, a space, where people are free from their roles. (Kuuluvainen & Saren 2016, 21-22.)

If the benefits of nature for physical and social health are great, the effects on mental health are even more remarkable. The problems in mental health are often strongly connected to stress and especially chronic stress, which in addition to physical illnesses can also act as a trigger for mental illnesses such as depression (MQ Mental Health 2018). The studies about the relationship between nature environments and mental health

shows, that already the easy access to nature and green areas correlated the good state of mental health compared to the areas nature and green areas does not exist (Beyer & al. 2014). Moreover, according to Li & al. (2013, 137-146), the two hours walk in the nature significantly decreased the feelings of anxiety, depression, anger, fatigue and confusion, increasing the feelings of vigor.

The nature's potential to offer a place to one feel released on negative feelings caused by mental health illness, has attempted to explain also with theories about the nature's restorativeness. The Attention Restoration Theory (ART) by Kaplan & Kaplan (1989, 183-187) propose that exposure to nature help us focus and renew attention after mental fatigue. According to Kaplan & Kaplan mental fatigue differs from stress in that stress, often prolonged, leads to mental fatigue. This leads to the feel of worn out and need of break and may be a result of trying to do too many things at the same time or the period of worry and anxiety. This what Kaplan & Kaplan calls mental fatigue refers specifically tiredness of mind instead of physical tiredness. According to the theory nature provides four key settings allowing mental restoration. These are "Being away", "Extent", "Soft fascination" and "compatibility" and offer a possibility to involuntary attention that refers to attention that does not require effort therefore allowing mental restoration. By contrast, attention that requires a lot of effort or even forcing is called direct attention that in turn leads to mental fatigue.

The other theory called Psycho-evolutionary Restoration Theory (PERT) by Ulrich et al. (1991) is based on the assumption that man has evolved in nature, which is why the brain and sensory system handle the natural environment better and prefer rather than the unnatural. In addition, theory claims, that certain types of natural environments are also more restorative than others, which is again based on people's innate ability to read nature and distinguish between safe and unsafe environments (Valtchanov 2013). What is common in both theories is the proposal that we as humans have innate preference for natural environments through our evolution in nature and that nature therefore offers us environment where it is possible to rest and heal.

Leppänen & Pajunen (2021) in their book *Terveysmetsä* (health forest) have comprehensively considered what is restorative or revitalizing in nature. In the book, geographer and journalist Marko Leppänen and biologist and entrepreneur Adela Pajunen discuss natural places, natural elements and features in landscape that effect on people in a particularly favourable way, in terms of restoration and revitalizing experiences. According to them, the concept of Health forest refers an area in the forest where the welfare benefits of the

forest can be experienced especially strongly. (Leppänen & Pajunen 2021, 15.) Despite the preference of what one considers the most optimal environment in terms of health and wellbeing is largely personal, the findings suggest that there is a correlation between certain types of nature elements and perceived well-being. As figure 1 shows, Leppänen & Pajunen (2021, 296-297) has listed altogether 31 features which make nature a place where healing, recovery and revitalization can be strongly experienced.

HEALTH FOREST CHARACTERISTICS		
1. Accessibility and	11. Views	21. Absence of litter and erosion
2. Passability and trails	12. Variety of nature environments	22. Clean air and smells
3. Absence of structured environment	13. Opportunity for collection of natural products	23. Silence and sounds of nature
4. Topography	14. Biodiversity	24. Naturally dark night
5. Outcrop	15. Aesthetically pleasing view	25. Site-bound tales
6. Signs of ice-age	16. Adequate extent	26. Noble experience
7. Possibility of soil contact	17. Possibility of animal contact	27. Sufficient amount of species
8. Water element	18. Especially formidable trees	28. Low level of risk
9. Tree stand, forested	19. Natural state of nature	29. Possibility for campfire
10. Open areas	20. Signs of human activity	30. Restorative constructions and services
		31. Spirit of the place

Figure 1. Health forest characteristics (adapted from Leppänen & Pajunen 2021, 296-297)

Moreover, according to them, different environments affect us differently and while the feelings of freedom and space can be experienced on high places like on top of a rock, forests in turn provide us more sheltered place to feel calm and safe. Other particularly revitalizing sites in nature include proximity to water, variability of habitats and biodiversity of the environment, as well as, the possibility of contact with animals for example, through bird watching. However, the signs of human action can also be revitalizing, such as an ancient relic or a human structure that reminds us of cohesion and continuity. (Leppänen & Pajunen 2021, 296-297.) The health forest concept has taken concretely into action and several forest areas in Finland has been declared as health forests. Such places in Finland locates at least in Hyvinkää, Parkano, and Ikaalinen (Tyrväinen, Savonen & Simkin 2017, 16-20.)

3 Wellbeing at work

In this chapter, the concept of wellbeing at work is defined and the elements forming the holistic wellbeing are discussed. After this, the chapter reviews the formation of a natural connection in the work environment through various actions done at work and the benefits of these actions. Lastly the significance of wellbeing days, outdoor activity during work-days and activity during free time as part of wellbeing at work are discussed.

3.1 Formation of wellbeing at work

According to Finnish Ministry of Social Affairs and Health, wellbeing at work is defined as an operation that is safe, healthy and productive, meaningful and rewarding for workers, balanced with the knowledge and competences of the workers as well as well and clearly managed. Wellbeing at work is therefore always a result of multiple variants. Thus, comprehensive work wellbeing requires a focusing to not only on the individual employee but also on the work community, working environment, work tasks and processes and management. (Ministry of Social Affairs and Health 2021.) Figure 2, indicates the role and relevance of different stakeholders as a part of holistic wellbeing at work.

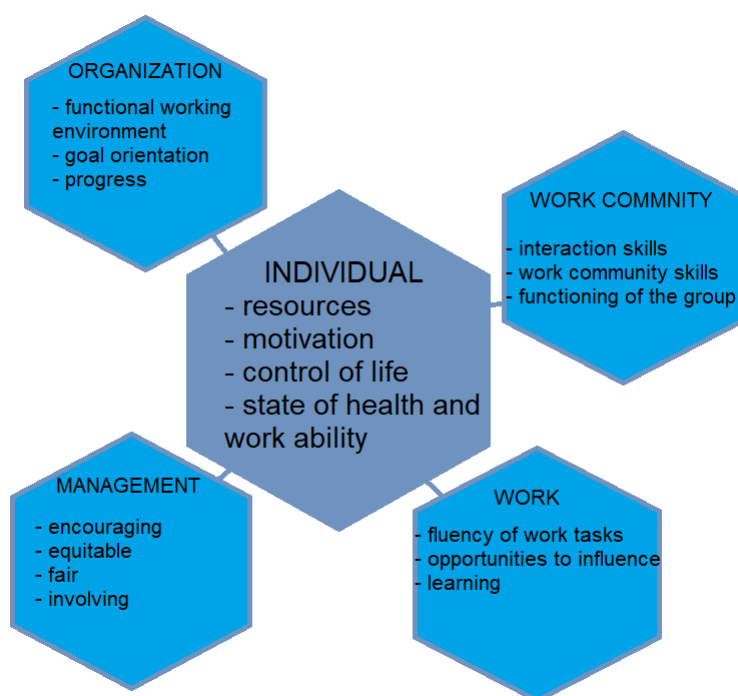


Figure 2. Factors affecting wellbeing at work. (Adapted from Manka & Manka 2016,76)

In the middle of the figure 2 it is described a singular employee with all the elements affecting to the individuals experience of wellbeing at work. As can be seen, the experience of wellbeing at work consists of mental resources such as motivation, control of life, state of health and the ability to work. In addition to personal resources, wellbeing at work is shaped by work community, work itself, organizational policies and management. When talking about the resources of an individual, it is meant the individuals ability to cope with struggles and challenges. These resources may include personal resources such as good state of health, good energy levels, positive beliefs, problem solving- and interaction skills, or environmental resources such as social support or wealth. (Manka & Manka 2016, 65.)

According to Finnish Institute of Occupational Health, a wellbeing and healthy employee refers to a person who feels motivated and passionate about their work, experiences a balance between independence and cohesion at work and feels work engagement. In addition, such a person feels able to utilize his/her strengths and skills at work, recognizes the objectives of the work, receives feedback and feels necessary at work. However, especially the work engagement – that refers to a positive and motivated attitude towards work and appears as a vigor, dedication and enjoyment at work, has been proven to be strongly tied to an employees' experience of wellbeing at work. The key resources forming the positive experience of wellbeing at work and therefore are requirements to experience work engagement, include positive attitude and emotion about the work tasks, a sense of reward gained from the work done, an opportunity to develop at work and diversity of work tasks. (Työterveyslaitos 2021.)

When considering the significance and role of the work community to individuals, skills such as interaction skills, teamwork skills and the functionality of the group, are emphasized. Therefore, the definition of wellbeing or healthy work community includes positive atmosphere at work that is open, trustworthy, inspiring and encouraging. Pursuing common goals and objectives, providing positive feedback and a reasonable amount of work, are other characteristics of a prosperous work community. The key resources in such a work community are good interaction between community members, the support of the supervisors and work community, fairness and clear leadership at work. (Manka & Manka 2016,148-149 ; Työterveyslaitos 2021.)

One of the boxes in the figure 2 describes the significance of work itself, the content of work tasks and the smooth running of work tasks, for wellbeing at work. Here, as men-

tioned earlier the key factors affecting the experience of wellbeing at work, are the possibility to utilize one's strengths and skills at work. Meaningful performance of work tasks requires a balance between the employee's conditions and the requirements and opportunities set by the task. Moreover, versatility of work tasks, possibility to learn and develop at work as well as the ability to influence matters concerning one's own work, such as the type of work task or working hours, strongly contributes to wellbeing at work. (Manka & Manka 2016,41; Työterveyslaitos 2021.)

Management in the figure 2 in turn refers the importance of employer and other supervisors support at workplace. As described in the figure 2, characterises for a good management are encouraging and fair atmosphere at work. Moreover, a good leader is considered fair and involving. This can mean e.g. equal treatment of employees or keeping the workload reasonable. The importance of management is also reflected at the organizational level and can be seen in policy making that considers whole organization. The organization section also describes the importance of the work environment as part of wellbeing at work. This includes first of all the health and safety of the working environment and is regulated by occupational safety law. Factors affecting the physical work environment in terms of well-being at work may include e.g. noise, too hot or cold temperature, poor air quality, poor work ergonomics or lack of sufficient equipment. The "mental work environment", in turn, is affected by the interaction of the work community, the general atmosphere in the workplace and management. (Manka & Manka 2016,134-137.)

As the figure 2 indicates, wellbeing at work consists of multiple variants. It is seen as a long-term investment, that impacts not only on the well-being of the individual, but additionally positively correlates to lower employee turnover, sick leaves of personnel or accidents at work. As the consequences of successful occupational health care and wellbeing of workers are extensive, they often positively effect also even on competitiveness, financial performance, or even reputation of a company. Holistic wellbeing at work therefore does not consider only personnel but also the working community, working environment, work processes and management. (Työterveyslaitos 2021.)

3.2 Utilizing nature for wellbeing at work

When utilizing green- or nature elements as part of spatial planning, one can speak about, interior landscaping, indoor plantscaping and biophilic design. With interior landscaping, or indoor plantscaping (fin. vihersisustus tai vihersuunnittelu), it is meant;

“the strategic placement and selection of plant species within an architectural project to highlight and enhance aspects of spatial design” (Santibañez 2019).

With the help of landscaping both spatial, emotional and environmental effects can be achieved. With indoor plantscaping or interior landscaping it is aimed to build bridge between human and nature in places where nature connection is not naturally possible, such as indoors. Therefore the term landscaping refers to more than just bringing plants indoors. (Santibañez 2019.) It is based on the multiple statements, that from various nature elements especially plants and green elements are stated to have multiple positive effects on one's well-being.

Biophilic design dives even deeper in spatial planning, viewing more holistically the benefits of house plants but also the benefits of other nature elements. Biophilic design is based on and operates on the basis of the biophilia hypothesis where the idea that our natural tendency to be in contact with nature, is due to the fact that our species has evolved in nature. Therefore, with such design the main aim is to "satisfy our innate need to affiliate with nature" in urban and modern environments, where there is no nature available naturally. Moreover, biophilic design is based on the idea that environments and nature elements that ensured our survival as a human species are still to this day favourable and beneficial for us. Such environment can be places and elements that offered us shelter and food or a place to rest and socialize. Again, environments that were irrelevant in terms of survival and evolution of our species, offer still to this day only little if any, benefits to us. (Kellert 2015.)

Biophilic design at its simplest, refers to a spatial planning, similarly with indoor interior landscaping, or indoor plant scaping. However, while indoor plantscaping often focuses only certain areas, aiming to create a certain atmosphere in an individual space, biophilic design takes the whole building into account as a whole. According one of the authors of Biophilic design (2008) Stephen R. Kellert, the impacts of such individual natural elements indoors are vanishingly small, in some cases almost non-existent, and a much more holistic approach is needed. Thus, biophilic design emphasis a creation of a functional entity that mimics natural ecosystems, where different nature elements support each other. According to Kellert only when natural elements do not conflict with the urban or built environment it is possible to achieve the health and wellbeing benefits that nature has to offer.

The third principle of biophilic design, empathises the importance of repetition and continuity of nature elements in the interior, instead of short or superficial contact with nature elements and environments. (Kellert 2015.)

According to the principles of biophilic design, the nature connectedness indoors can be built through three different type of nature experience including the direct and indirect experience of nature as well as experience of place and place, as the figure 3 shows.

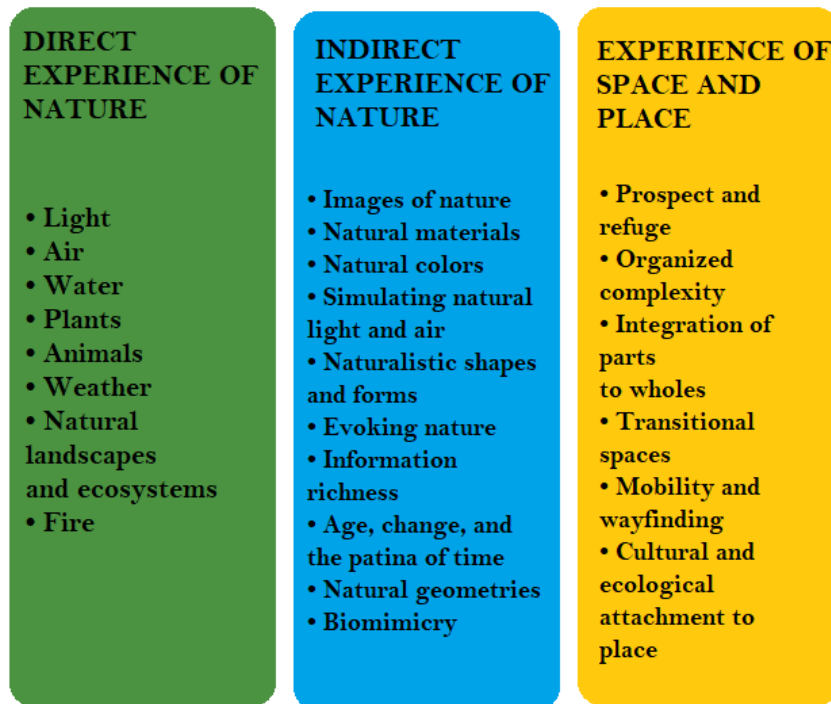


Figure 3. Experiences of nature. Adapted from (Kellert & Calabrese 2015)

The direct experience of nature includes elements such as plants, animals, light, air and water. When looking the utilization of different elements of direct nature connection indoors, there are many studies especially on the positive benefits of indoor plants. Plants are used for multiple reasons, in biophilic design out of which one of the reasons is their ability to effect on the microclimate indoors. One of the most common health effects of indoor plants is associated with their ability to bind airborne contaminants and even toxins and thus clean the air. In addition, plants produce oxygen and bind carbon dioxide (Burchett, Tarran, Torpy 2007). However, according to an article published in 2019, the ability of plants to clean air was greatly exaggerated (Cummings & Waring 2019). Moreover, indoor plants have shown to for example maintain the moisture balance indoors to prevent often too dry room air (Lohr & Pearson-mims 1996), as well as positively effecting on room acoustics, as plants can reflect, diffract, or absorb sounds of the interior. Both are

good news for people working in the office environment as with adequate moisture balance can be prevented nose bleeds, higher incidents of the flu, static, coughing, itchy eyes and sinus issues, while good acoustic in the working environment reduces background noise and helps focus (Smith, Fsadni & Holt 2017).

As also discussed more in detail in chapter 2, plants, also when utilising indoors have additionally shown to effect on how comfortable and pleasant the interior is experienced (Nieuwenhuis, Knight, Postmes, Haslam 2014). Moreover, they are capable to prevent mental fatigue and improve attention capacity and restoration (Raanaas, Evensen, Rich, Sjøstrøm & Patil 2011). This is especially important in terms of work, as working today happens increasingly not only indoors but in the digital age is by type mostly “knowledge work.” According to definition knowledge work refers to;

“Profession that primarily involves producing unique knowledge such as decisions analysis problem solving, theory, strategy, planning, design, art and technology” (Spacey 2017).

Therefore, as can be seen from the definition, today’s working life requires particularly cognitive qualities, such as concentration, learning, memory, processing, planning and problem solving. In such work, stress management and recovery from work are especially important, as continuous deficient recovery from work leads not only to stress, but when prolonged may cause depression or burnouts. Therefore, the significance of restorative breaks and balanced conditions of the working environment are the key factors for coping at work, which according to studies can be achieved with the help of nature elements.

Moreover, especially in the context of workplace one of the much-talked feature of plants is their effect on productivity (Sancheza, Ikaga & Sancheza 2018). According to Human Spaces Report (n.d.) the presence of natural elements improved productivity by 8% in the workplace context (Cooper (n.d.)). However, this can be seen in a way as the sum of the other benefits of the indoor plants and other nature elements, which at best leads to better performance and productivity at work.

From elements of direct nature experience, in addition to green elements, natural light plays key role in terms of wellbeing. Natural light regulates our circadian rhythm, while lighting therefore effects on the feel of alertness or tiredness. The absence of natural light gets the body to produce a hormone called melatonin, that is needed in order to fall

asleep, while exposing to light stops the production of it. Therefore, the exposure of adequate amount of light during daytime and only little during night time, is a prerequisite for the normal functioning of melatonin production. In other words, too little exposure to light during the day may start melatonin production and make us feel tired, while exposing to light during the night prevents the production of melatonin. Disruption of melatonin production causes tiredness and fatigue but often leads also to e.g. insomnia. Moreover, in nature the sun is the source of vitamin D that keeps us seeking sunlight naturally. (JBI Evidence synthesis 2021.)

According to Leppänen & Pajunen (2021, 296), the presence of even a small water element enhances the revitalization and restorativeness of the place. From the point of Biophilia hypothesis, elements such as water or fire are particularly advantageous to us as they have played - and still plays, a key role in the survival and success of the human species and therefore produces the feel of security and wellbeing (Kellert 2015).

Elements of indirect experience of nature are vital in terms of building nature connection indoors as the utilization of direct experience of nature may be limited for multiple reasons. These reasons may include insufficient resources to acquire or take care of nature elements indoors or in terms of plants often allergies limits using living nature elements indoors. Paradoxically, however, contact with plants, and especially with soil, has been shown to have positive effects preventing inflammatory diseases such as allergies. (Haahtela & al. 2017)

As figure 3 shows, indirect experience of nature is formed through elements such as images of nature, natural elements or colors. Moreover, shapes, dimensions, textures or surfaces that refers to natural environment are also part of indirect experience of nature. Moreover, in case of the absence of elements of direct nature experience, such elements can be replaced with the help of elements of indirect experience of nature. As an example, bright artificial lighting can be used in the absence of natural light resource while to replace the absence of window view nature-themed images can be emphasized indoors. However, in best case, both direct and indirect elements are used together to ensure the continuation of the natural connection in the interior.

Studies have shown that looking pictures of nature have similar positive effects on health as viewing natural landscape - in the nature. Looking pictures of nature reduces tension

and lowers heart rate and blood pressure. Moreover, similarly as viewing the natural landscape, viewing images of nature revitalizes and relaxes, improves mood, and relieves stress. (Cox, Howard & Howard 2014; Ulrich & al. 1991.) In addition, recent studies have focused on the utilization of audio-visual and virtual nature elements, indicating similar results. Even short breaks in the room with visual and auditive elements of nature, reduced stress levels rapidly. Moreover, according to results, especially pictures and sound of forest and water elements felt most restorative. (Ojala & al. 2019, 21-29.)

As discussed, using especially biophilic design in the workplace context, multiple health and wellbeing related benefits can be achieved. By adding more green in the workplaces, it is therefore desired to have more happy, relaxed and productive employees who feel good at work and get sick less as indoor plants have said to boost mood, reduce fatigue, lower stress and anxiety as well as improve performance. Such practice has become popular as the number of studies about nature's beneficial effects on our health and wellbeing has increased. However, in order to achieve such benefits at work, it is needed to first of all understand, what is and is not nature, why we as we feel in nature and but only after this, how can we mimic such beneficial environment indoors and in the workplaces. Therefore, in addition to shaping the physical working environment to enable the nature connectedness at work, by shaping practices in our everyday life at work as well as during one's free time, it is possible to harness nature to support one's wellbeing at work even more effectively.

As an example of this, when considering daily work, especially in the office environment, most likely in addition to work, working days includes coffee- and lunch breaks, possible transitions from one place to another during the work day, meetings and daily commutes which, however, are not considered to be part of the actual working hours, but inevitably are part of the daily work day. In addition to this everyday life practices, depending on the nature of the work, the employer and general practices of the workplace, the work context may involve activities such as trainings, recreation or well-being days, campaigns, trips or other similar practices.

All above mentioned are opportunities to include and strengthen the nature connection at work context. According to Rantanen (2014), employees spending time in the nature experienced the most work engagement and coped better at work. In addition, the study found that exercise that took place somewhere else than in nature did not have a similar effect on job satisfaction. Moreover, according to Hyvönen & al. (2018) exposure to nature

during the working day and during leisure time, is more effective in terms of wellbeing at work than just exposure to natural elements indoors. While the possibility to implement such actions are strongly related to the resources and general workplace policies at work, they are however based on the multiple studies justified and effective ways to increase well-being in the workplace.

4 Methods

This chapter focuses on the methodology of the conducted research. At first the aim of the thesis, the research problem, and the research questions are reviewed. After that the different research methods and the differences between them, are discussed in theoretical point of view. Next the arguments for using certain methods in this thesis are given and justified. Moreover, the chapter describes the research proses in general, including the timetable and the challenges relate to the process.

4.1 Research problem review

The main reason for conducting the study was to find answer to the question – “How the nature relationship actualizes in different office environments and what effects it is perceived to have on employee’s wellbeing at work”. In order to better understand the topic and be able to answer the research problem, the following research questions were asked;

- What are the key elements for forming the nature connection in the office environment?
- How the quality and quantity of the nature connection is perceived by the office workers?
- What are the perceived effects of the nature connection on wellbeing at work, in the opinion of the employees?
- Is the nature connection in the office environment perceived to be sufficient?
- What are the desired changes in terms of nature connection in the office environment?

Due to the nature of the phenomenon under study, the research problem and the research questions derived from it, quantitative research method and further survey as a data collection tool was chosen. The data collecting tool was conducted based on the above-mentioned research questions, with the aim to find answers these questions and solve the actual research question.

4.2 Qualitative and quantitative research methods

The goal of the research, development task and perspective of the research, define the methodology to be used in the research. The research methods are typically divided into two, quantitative and qualitative research methods, albeit there are some other less commonly used methods as well. Moreover, despite the many differences between qualitative and quantitative research methods, that are often seen as a opposite of each other, the methods can also be combined and used together. Such cases are called case-, design-

based-, and action researches. (Kananen 2017, 170-172.) The following chapter however focuses on these two most common research methods – qualitative and quantitative, presenting the key characters and the main differences between these two methods. Methods for qualitative research include thematic-, open-, or group interviews as well as active observation. The use of qualitative research is suitable for situations where the phenomenon under study is not yet well known and there are no theories on the subject to explain the phenomenon under study. As a general rule, the less the phenomenon is known, the more likely a qualitative method is to be used. (Ojasalo, Moilanen & Ritalahti 2015, 105; Kananen 2017, 32-34.)

Qualitative research seeks to gain an in-depth understanding about the topic or phenomenon under study and aims to create new theories and hypotheses. It seeks answers to the question, what is the phenomenon about. The qualitative research happens often in interaction between the researcher and the subject of research and the main focus often lies in the perspectives, views and experiences of the subject. Qualitative research generates a verbal description, while results gained from quantitative study are often described with numbers. Compared to quantitative research, where hundreds of people are targeted, qualitative research targets much fewer people. (Kananen 2017, 32-36.)

Where the qualitative research seeks to gain an in-depth understanding of the phenomenon, quantitative research rather strives to test the validity of the claim made about the phenomenon. Therefore, quantitative research requires that the topic under study, is known, and that theories and models to explain the phenomenon, exists. Moreover, the researcher needs to be familiar with these existing theories, in order to be able to conduct the study. (Ojasalo & al. 2015, 104-106.) According to Kananen (2017,35) quantitative research is therefore always based on qualitative research with which the necessary theoretical basis was originally built.

As mentioned, where for qualitative research verbal description is typical, quantitative research focuses on collecting numerical data and generalize the gained results to a large group of people. It seeks answers to questions, how much and how often and describes the relationship between two or more predefined variables. Therefore, it suits for situations, where testing the validity of a theory or a hypothesis is desired. (Ojasalo & al. 2015, 104-106.)

Operationalization and structuring are other characters of quantitative research that happens before data collection. Operationalization works as a link between theory and empiric. To be able to gain answers that are measurable, it is needed to transform the often obscure theoretical and conceptual matters into a form that is easier to understand and preferably more relatable for the population under study. The population under study may not be familiar with the phenomenon in theory, however the topic is often very familiar on personal level or in practice. For this reason, the question asked, must be formed to a more identifiable form and often to match with the real life. As another aim is to get all respondents understand the questions and the answer options in the same way, in addition to operationalization, structuring is required before starting data collection. Structuring means standardisation of variables into a certain, predefined form. In practise this means that the questions and answer options in the survey are asked in exactly same way, and in the same order from each respondent. (Vilkka 2007, 14-15; Saaranen-Kauppinen & Puusiniikka 2006.)

Quantitative research can be explanatory, descriptive, mapping, comparative or predictive in nature. The main goal for explanatory research is to present the causal relations of things and thus clarify or make the desired phenomenon more comprehensible. In descriptive research, the main goal is to form as accurate and detailed description as possible of certain characteristics of a particular event, activity, or situation. The aim of the mapping study is to find different models, themes and types and to create new perspectives and hypotheses while a comparative study, as its name implies, compares the relationships between two or more variables, typically based on a hypothesis. Predictive research in turn, seeks to generate information about the emergence of certain things and phenomena in the future and in different eras. (Vilkka 2007 18-23.)

In quantitative research, the same questions are asked in the same way, from a large group of people, that forms a *population*. In this context the population refers to the entire target audience under study. As reaching the entire target audience is often impossible, the research is assigned only to part of the population. These responses obtained from the smaller part of the population, forms a *sample*, which are further generalised to describe the whole population. In quantitative research, the choice of respondents is often based on random sampling, where respondents are randomly chosen. Moreover, in order the sample can reliably describe the whole target audience under study, it needs to be

large enough. When using statistical methods, at least 100 respondents are generally targeted. Quantitative research is therefore characterized by a large number of respondents. (Vilkka 2007,51-61.)

4.3 Survey as a data collecting tool

The most typical quantitative data collecting methods are surveys, however systematic observation and interviews are also quantitative data collecting methods. However, also these methods, still often relies on some form of pre-structured questionnaires. A survey can be used to collect good volume of information from a large group of people. Often information gained with survey is seen superficial, however at the same time it is seen to be reliable. Survey can be carried out in many ways. It can be either mailed or done over the phone or in person by interview. Today the most common way to conduct the survey is probably done over internet. This can be done either by email or by sharing the public survey link on suitable platforms. (Ojasalo & al. 2015, 121-122.)

A survey is a suitable data collecting method when information about the population under study - their opinions, characters or behaviour, is desired. A successful survey requires well-done questionnaire to which is typical that the questions together with answer options are carefully operationalized and structured, as mentioned earlier. In this instance, the survey is both clear and coherent and it is easy to answer, but also generates easily measurable answers. Often a successful survey therefore requires testing the survey few times, before publishing it to the full audience. Moreover, it is important to target the survey to the right target audience so that the respondents find the topic interesting or important to them. (Vilkka 2007, 28-63.)

The question type in the survey may be multiple choice questions, where the question and the answer options are structure and predefined. The questions can be also open questions, where the aim is to restrict the respondent's answers as little as possible. The question can be also mixed of these two when for example a certain chosen answer option causes and open question for more accurate information. (Vilkka 2007, 67.)

Additionally, a cover letter is needed to be created to support the questionnaire. The aim of the cover letter is to arouse the potential respondent's interest and justify, why they should answer to the questionnaire. Fostering a sense in respondents that their response is valuable and necessary can serve as a good motivator. The written style of the cover

letter is formal and should include enough information about the topic under study, as well as mention something about the researcher and the motive behind research. (Vilkkä 2007, 65.)

4.4 Execution of the research

The research for this thesis was done using quantitative research method and a survey as a data collecting method was chosen. As the main aim was to find out, how the nature relationship actualizes in different office environments and what effects it is perceived to have on employee's wellbeing at work, it was clear that a large number of different respondents were needed to investigate the matter. Therefore, a qualitative method was not considered. Moreover, a vast number of studies about the nature's impact on humans as well as environments impact on wellbeing was conducted and therefore a lot of theories about this topic existed. Due to the nature of the defined research problem and the research questions derived from it, quantitative research method and further survey as a data collecting method was considered to be most suitable and effective to solve the problem. In addition, due to the prevailing COVID-19 situation, research with as little human contact as possible was desirable, to which the quantitative method and survey suited well.

4.4.1 Timetable

The thesis process and therefore the research process as well started in January 2021, after approval of the thesis plan by the Haaga-Helia. The thesis was conducted for the commissioner Oivallusvaara, with whom the topic for the thesis was decided. The combined effect of the interests of the author and the commissioner's wishes, it was decided to conduct a study about the actualization of nature connection at work. There are many studies conducted about the beneficial effects of nature on health and well-being and on the importance of the surrounding environment, but the aim of this study was to determine whether this existing information has been taken into action in the workplaces to support workers' health and well-being. Moreover, the intention was to find out, through which actions the nature connection had been implemented at work places, where the nature connection was visible, but also, whether these actions had any beneficial effects on employee's wellbeing.

The research process started by familiarising with the most relevant studies and theories in terms of the thesis topic. These included studying the relationship between human and

nature, the concept of forest medicine, biophilia and biophilic design as well as the concept of occupational health and wellbeing at work. In order to be able to conduct an effective survey to solve the research problem set, getting to know the theory was necessary. The original plan to study the actualization of nature connection at work changed and specified along the way and after the many discussions with the commissioner, it was decided to focus the research only to office environments and the nature elements at offices. At this point one of the challenges was the fact that due to the covid-19 situation, many worked at home instead of offices, that wanted to be studied.

The creation of the actual data collecting tool, the survey, took more time than expected. Many discussions what the questionnaire should eventually include and what matters where the most important to ask on the survey, led to slow progress of the process. In addition, the questionnaire contained a lot of logic about how the survey progressed after each answer, in order to be as clear and consistent as possible for the respondents. Therefore, additionally creating suitable answer option turned out to be challenging at some point. All and all many survey versions were done before the final version was ready at the end of the May 2021.

On May the questionnaire was yet tested several times and also at this point some changes were done. Lastly, the cover letter for the questionnaire was written. The survey was published as a public weblink among my personal network and on several Facebook Groups and was open from 28 May to 18 of August 2021. The plan for the survey was to gain at least 100 responses and 138 responses were eventually received.

4.4.2 Execution of the survey

The survey was named “ Luonto ja työ – työympäristön luontoyhteys työhyvinvoinnin tukena” and is attached at the end of the thesis as appendix 1, Survey. As the survey was designed to consider employees working in offices in Finland, the survey was decided to create only in Finnish, in order to reach a larger target audience. The survey was created by using Webropol which also allowed the analysis of the gained material. The questionnaire included all and all 32 questions, out of which many were multiple choice question with the pre-defined answer options. However, the questionnaire included additionally closed and open questions and mixes of these three. The amount of the questions in the questionnaire can be considered large, however the questionnaire was designed in a way that only the questions relevant for each respondent were shown. Due to this, the number

of questions for singular respondent were almost in each case lower than 32. To gain as many responses as possible, it was decided together with the commissioner to include a lottery in to the survey. The book called "Luontoyhteys" – written by the commissioner, were drawn among the ones participated in the lottery.

The two first questions of the survey were; "I worked before COVID-19 pandemic" and "I work at the moment mainly in" with the answer options "At home, at work, both at home and at work", for both questions. This question was very important to ask, as the reason to ask this question was to identify, whether the respondent worked only at home, partly at home or only at workplace. To know this was important as the ones working only in home offices were not part of the actual target group. However, with the help of the combination of these two questions it was possible to distinct the ones working from home due to the COVID-19 situation out of the who worked home always. This was done because unlike the ones working home before and after pandemic, presumably, the ones who worked home only after pandemic have an office also outside home that they were able to describe regardless whether they were working there concretely or remotely. Therefore, the questionnaire was designed to end the questionnaire if the respondent answered working at home before and after the pandemic, when it was assumed that respondent did not have an office outside the home. All other answer option combinations of these two questions assumed that the respondent have a workplace outside home, where the respondent whether worked concretely or remote, but was anyhow able to describe this working environment.

The second two questions, question number three and four considered the industry of the respondents and the size of the company they work in. The purpose of the question considering the industry was to get more accurate information about the type of the work environment of respondents, however the questionnaire was chosen to publish among the people working in the offices. The question related to the size of a company in turn shed light on whether it was a single office room, or entire office building in question. The size of the company was examined on the basis of the size of the staff, which according to Tilastokeskus (2021) classifies companies with less than 10 employees as micro-companies, companies with 10-50 employees as small companies, companies with 50-250 employees as medium-sized companies and companies with more than 250 employees as large company. Based on the size of the company, it was also possible to get an indication of the company's resources to invest on employee's wellbeing.

The purpose of the next questions was to find out, what nature elements there was in each office and therefore study the volume of nature connection in each office. There were 13 different questions, that each asked the existence of different nature elements in the office one at the time. These questions had nine pre-defined answer options, that were same for each nature element. These options clarified the location of each nature element in the office and the options given were; workstation, meeting room, kitchen or coffee room, breakroom, lounge, lunchroom or cafeteria, hallways, bathroom facilities, other – what?” The aim for this question were to map out, what elements formed the nature connection in office environment, but also what was the intensity and extend of these elements.

Next in the questionnaire respondents were asked to tell, whether green design was done in their offices and were they brought any nature elements to the office by themselves. With the question considering green design done in the office, the purpose was to map, how common course of action this was in office environment, when knowing it beneficial effects of wellbeing at work (Kaplan 1993, 193-201; Nieuwenhuis et al. 2014). Moreover, with the question asking whether the respondents were brought nature elements in their office it was wanted to know, whether they find this type of activity pleasant and whether it correlates with experience of the positive effects of nature elements in the office. This experience of perceived positive effects of nature elements in the office was desired to study more closely due to which the following question were asked; “I feel that plants or other natural elements in the workplace have a positive effect on my well-being at work?” and “I would like green design to be done in my workplace or more natural elements in the office?” The idea with these questions were to find out whether respondents were satisfied with the existing nature elements in the office or hoped for more. Additionally, in connection with the latter question, the respondents were asked to describe what type of nature elements they hoped to be add in the office, to create a deeper and more concrete understanding of employees wishes regarding their working environment.

In the questionnaire it was additionally studied whether it was possible for the employee to use part of the working time for outdoor activities but also whether there was possibility to receive financial support from the employer to be used in employees’ free time. Moreover, it was asked whether there were organised wellbeing days for employees by the company. With the help of these three questions, it was wanted to find out the actions done by the company to offer and improve nature connection at different office environments. Besides these question respondents were asked, whether there were any beneficial effects

perceived due to these action in order to find out the usefulness of these measures to promote the wellbeing at work. Lastly respondents were asked to comment freely the topic and the actions done at their workplaces to promote the nature connection in the offices as well opportunity to participate in the lottery.

5 Results and findings

In this chapter the results obtained from the survey are presented. The execution of the survey as well as the progress of the research are explained in more detail in chapter 4. The survey was opened 28 of May and closed 18 of August 2021. Altogether 138 responses were received exceeding the target of 100 responses. The survey was conducted and analysed with Webropol. The original survey can be found at the end of the report as Appendix 1, Survey. Note that the questions 6-17 are missing from this appendix, as the occurrence of them is based on the choices made in the question 5. The questions 6-17 considers the placement of those nature elements that are chosen in the question five. Moreover, other additional questions arising from the choice of a particular option do not appear in the appendix. All questions are however comprehensively considered in this section.

5.1 Background questions

The survey started with four background questions asking:

- Working environment of respondents before COVID-19 pandemic (Q1)
- Working environment of respondents during COVID-19 pandemic (Q2)
- Field of working of respondents (Q3)
- Size of the company of respondents (Q4)

The aim of these background questions was to map the prevailing situation of respondents, as well as ensure the targeting of right target audience and map out the existing working environment of respondents. The first two questions formed a pair of questions, with a purpose to reach a correct target audience - a group of respondents who had a workplace outside the home, regardless of whether or not the persons were currently working remotely at home due to the pandemic. Therefore, respondents without an out-of-home workspace were excluded, meaning respondents who reported working at home before and during the pandemic, assuming they thus had no workplace outside the home. Out of 138 responses 22 responses were such out-of-target responses, which were not taken into account and thus only 116 responses in total were taken into account. Such exclusion was done, as the survey were not designed for target group working in home full time, but only to study conditions of workplaces outside of home.

As the figure 4 shows, before pandemic, only 4% of respondents worked from home, when during the pandemic the corresponding number had increased to 38%. Before pandemic, the majority of respondents (78%) worked in their workplaces when during the pandemic no more than 36% worked in the office. Moreover, before pandemic already 18% of respondents worked hybrid, both from home and in office, when the number during the pandemic rose only little, with 26% working both from home and in office.

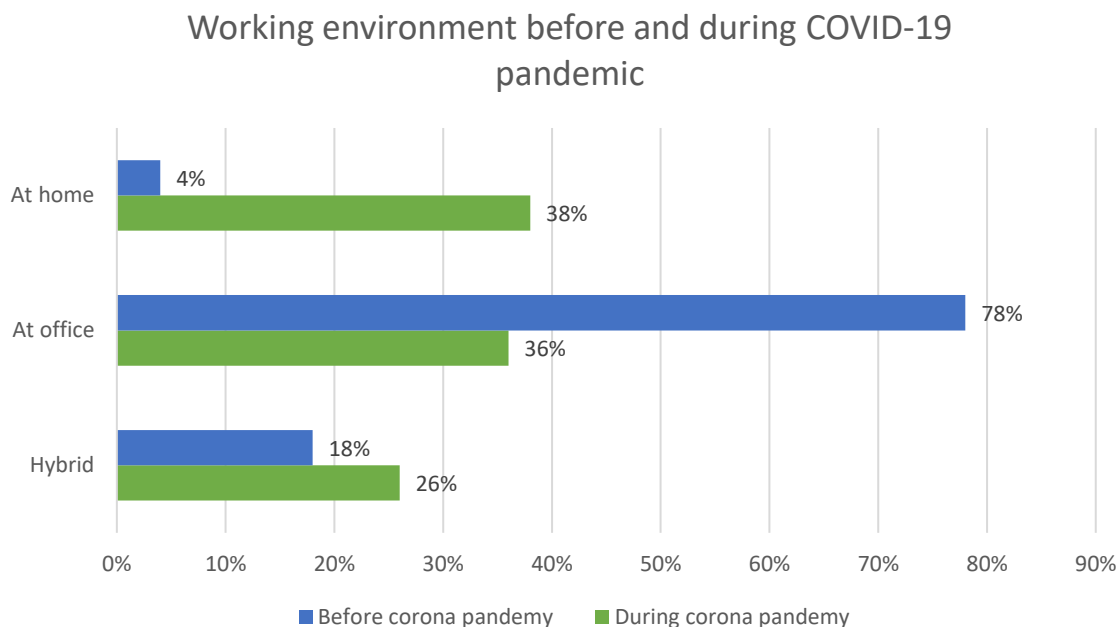


Figure 4. Working environment before and during COVID-19 pandemic (N=116)

The third question asked considered the industry respondents worked in. The purpose of this question - together with the fourth question considering the size of the company respondents worked in, was to gain more accurate information about the possible working environment of respondents, as the target group was mainly the people working in the office environment. The question considering the industry was open ended and 116 responses in total were gained. Based on the responses received, respondents worked in a wide variety of fields. Figure 5 shows the 22 most reported industries by the respondents out of which the most reported where industries such as research, customer service social services and sales were the most reported industries.

Industry of respondents



Figure 5. Question considering the industry of respondents (N=116)

The last background question, question number 4, looked the size of the company of respondents and gained 116 responses in total. As the figure 6 shows the majority of respondents (45%) worked in the company with more than 250 employees, while 14% of respondents worked companies with 51-250 employees, 21% in companies with 10-50 employees and 11% in companies less than 10 employees. Out of 116 respondents 9% reported working as entrepreneurs.

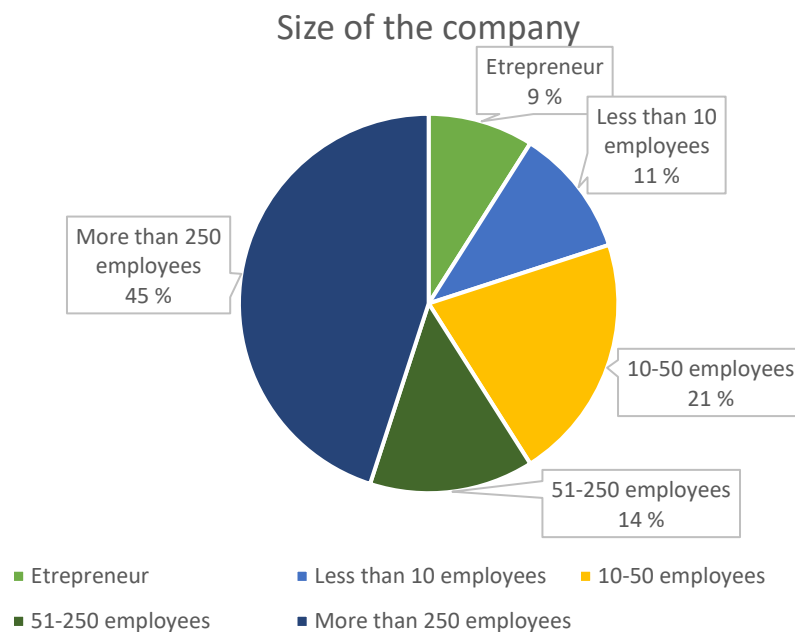


Figure 6. Question considering the size of the company of respondents (N=116)

5.2 Nature elements in workplaces

The next section of the survey examined the occurrence of different natural elements in the workplace of respondents in terms of type of the nature element as well as the locations of each element in the workplace. This covered the questions number 5 considering

what type of nature elements there were at workplace of respondents, as well as the question number 6 asking the location of each reported nature element at workplace.

Respondents were instructed to describe the situation from the perspective of a workplace outside the home, regardless of whether they were working from home or at workplace at the time of the replying to the survey. All respondents progressed to this point of the survey, could be expected to have a workplace outside the home to describe, based on the exclusive questions asked in the beginning of the survey.

The fifth question considering the occurrence of different nature elements in the workplace of respondents, was multiple choice question and was answered by 116 respondents. The question consisted of 14 different nature elements to choose from and respondents were asked to report which nature elements out of 14 given options existed in their workplace. As the question was multiple choice question, respondents were able to report the existence of multiple nature elements. In addition to these options, respondents were given a possibility to report freely other nature elements in their workplaces, that were not mentioned in the list.

From the figure 7 it can be seen the 14 given nature elements options. Moreover the figure shows the number of reports for an individual natural element in percentages. In other words, according to figure 7, 82% of respondents reported they have natural light at their workplace, while only 1% of respondents reported “virtual nature elements” at work. However, the percentage number cannot be used reliably to describe in how many different companies’ natural element was reported, as the result may include more than one response per company. Thus, one answer does not automatically represent the situation in one company, but only describes the situation of an individual respondent.

The figure 8 in turn presents the distribution of nature elements popularity in companies of different sizes, presenting the 5 most reported elements in companies of different sizes. As the question considering the existence of nature elements at work was multiple choice question, respondents were able to report multiple nature elements. Among all respondents, an average of 3,5 natural elements out of fourteen elements were selected per one respondent. Moreover, the size of the company was not found to affect the average of the reported elements but remained at 3,5 regardless of the size of the company.

As the figure 7 shows, the most reported nature element among all respondents was “natural light” reported by 82% of respondents. Moreover, the source of natural light was more likely to be window with urban view than window with natural view. The option “window view, mostly urban” was reported by 62% of respondents, while “window view, mostly natural” only by 32% of respondents. Living plants were the second most reported nature element after “natural light” reported by 57% of respondents and gained more responses than “artificial plants and flowers” that reported only by 34% of respondents. The option “nature themed pictures” was chosen by 42% and “living flowers” by 16% of respondents. Last of the nature elements was chosen by under 10% of respondents and therefore can be considered rather rare elements in the workplace. Lastly, 5% of respondents reported other nature elements out from the list. Other reported elements were; nature themed wallpapers on the walls, stones, smart garden and nature-themed backgrounds on the laptop screen. Each of these elements was reported only once.

Prevalence of nature elements

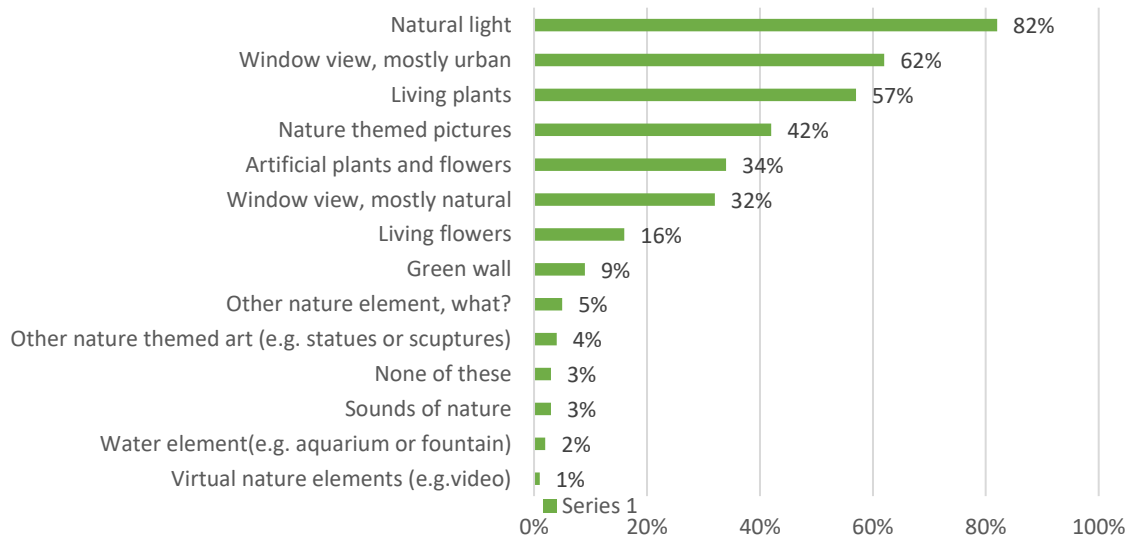


Figure 7. Prevalence of different nature elements in workplaces of respondents (N=116)

When looking the figure 8 that indicates the correlation of nature elements prevalence in companies of different sizes, first of all it could be noticed that, all nature elements from the list were reported at least once. Furthermore, it could be observed that the company size did not have a significant effect on the prevalence of a particular nature element in a

company. As the figure 8 shows, the prevalence of nature elements was largely similar regardless of the size of the company. In other words, the same natural elements remained popular or unpopular regardless of the company size and “natural light”, “living plants”, and “nature themed pictures”, were the most popular nature elements regardless the size of a company. In addition, in companies of all sizes, it was more likely that the source of the natural light was window with an urban view than a natural window view. The only exception was done by entrepreneurs, who reported more “window view mostly natural” than urban views. This can be thought to be influenced by the ability of entrepreneurs to influence their work space more compared to other respondents.

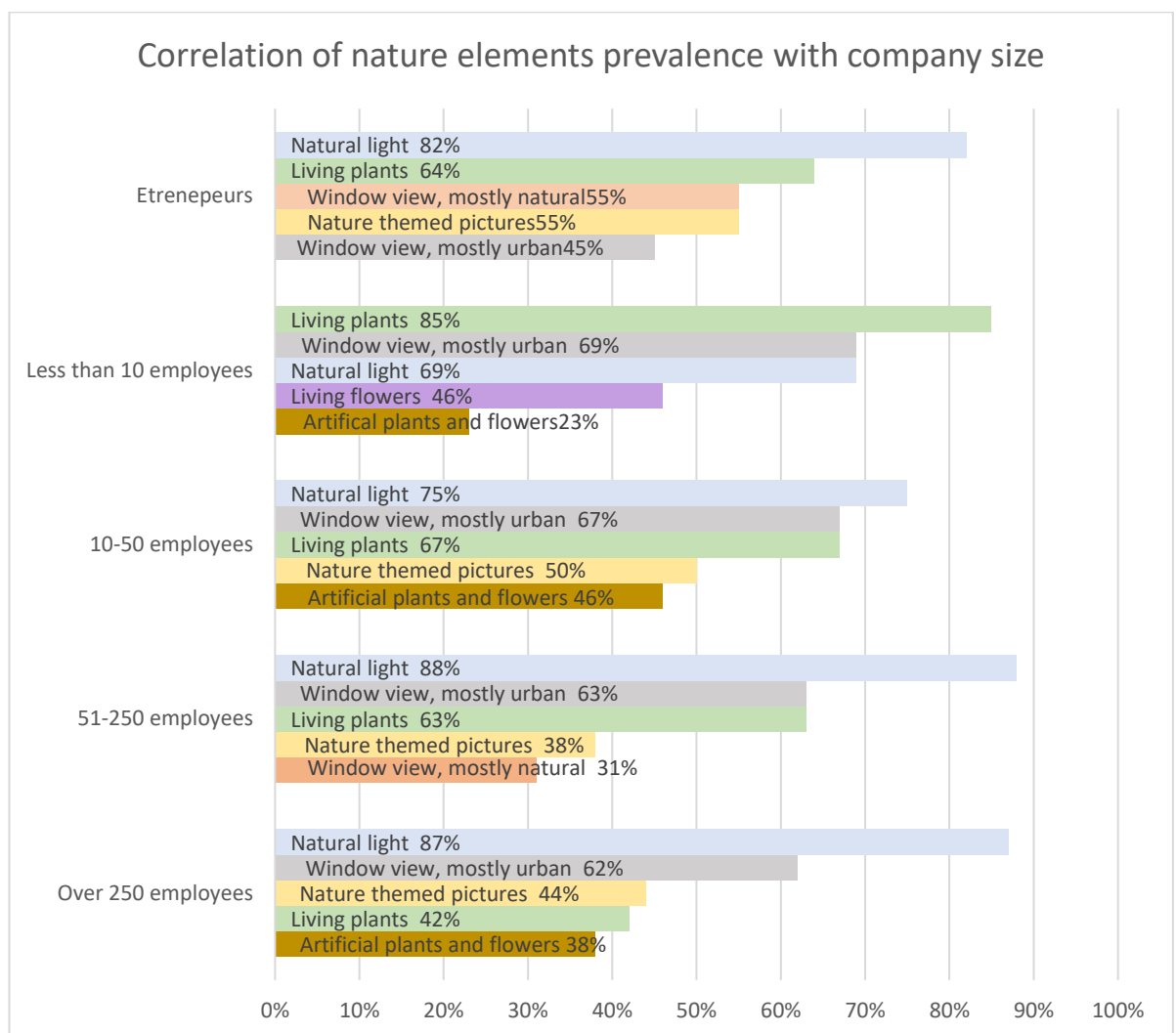


Figure 8. The 5 most common nature elements in the companies of different sizes (N= 116)

Although the distribution among the occurrence of natural elements in different size companies was even, a correlation in the prevalence of green plants to the company size, could be observed. According to results, in big companies, fewer green plants were reported than in small ones and the smaller the firm, more green plants were reported. Furthermore, contrary to the expectation that green walls would only occur in large companies, they were observed in companies with 10-50 employees by 8%, companies with 51-250 employees by 31% and in companies with more than 250 people by 8%. Rare nature elements that were reported less than 10% of respondents, in turn were more typical in large companies and elements such as “virtual nature elements” or “water elements”, were reported only in companies with more than 250 employees. Sounds of nature were reported only in companies of more than 250 employees (4%), in companies of less than 10 employees (8%) and by entrepreneurs (9%). “Other nature themed art in turn was reported only in companies with more than 250 employees (6%), companies with 10-50 employees (15%) and by entrepreneurs (9%).

In addition to question what nature elements could be found in the workplace of respondents, the questions considering the location of nature elements, was asked. The question considering the location of different nature elements at work consisted of questions number 6-17, as the location of each nature element was asked by individual question. The location of nature elements was asked in order to study, what nature elements formed the nature connection in each interior and whether there was great variation between different interiors.

The table 1 shows the distribution of nature elements as a percentage between different interiors at workplace. The percentage distribution is formed among all reports done concerning a certain interior. Therefore, for example of all nature elements reported in the lobby, natural light accounted for 36%, living plants 25%, artificial flowers 16% etc.

As the table 1 shows, “natural light” was the most reported nature element in all interiors while “living plants” was the second common nature elements in majority of interiors. Meeting rooms and toilets were the only exceptions to this where “nature themed pictures” and “artificial plants and flowers” were the second most reported elements and “living plants” the third common element. However, in most of the cases, “natural light”, “living plants” and “nature themed pictures” were the main elements forming the nature connection in a interior. Correspondingly, the fewest elements observed were “sounds of nature”,

“virtual element” and “water element” in majority of interiors.

Table 1. Location of different nature elements in the workplace of respondents

Lobby		Workstation		Meeting room		Coffee room	
Natural light	36 %	Natural light	48 %	Natural light	50 %	Natural light	44 %
Living plants	25 %	Living plants	20 %	Nature themed pictures	22 %	Living plants	23 %
Artificial plants & flowers	16 %	Nature themed pictures	14 %	Living plants	10 %	Nature themed pictures	12 %
Nature themed pictures	14 %	Artificial plants & flowers	7 %	Artificial plants & flowers	9 %	Artificial plants & flowers	12 %
green wall	3 %	Living flowers	4 %	Living flowers	3 %	Living flowers	5 %
Living flowers	3 %	Other nature elements	2 %	Other nature elements	3 %	Other nature elements	2 %
Other nature themed art	1 %	Greenwall	2 %	Greenwall	3 %	Greenwall	2 %
Sounds of nature	1 %	Other nature themed art	1 %	Other nature themed art	2 %	Other nature themed art	2 %
Water element	1 %	Sound of nature	1 %	Sound of nature	0 %	Sound of nature	0 %
Virtual elements	0 %	Virtual elements	1 %	Virtual elements	0 %	Virtual elements	0 %
Other nature elements	0 %	Water element	0 %	Water element	0 %	Water element	0 %
Other resting area		Lunch restaurant		Hallways		Toilets	
Natural light	48 %	Natural light	58 %	Natural light	54 %	Natural light	43 %
Living plants	19 %	Living plants	21 %	Living plants	16 %	Artificial plants & flowers	29 %
Nature themed pictures	17 %	Nature themed pictures	10 %	Nature themed pictures	14 %	Living plants	14 %
Artificial plants & flowers	10 %	Artificial plants & flowers	8 %	Artificial plants & flowers	12 %	Other nature elements	14 %
Greenwall	4 %	Living flowers	3 %	Living flowers	2 %	Greenwall	0 %
Other nature themed art	2 %	Greenwall	0 %	Greenwall	2 %	Living flowers	0 %
Living flowers	0 %	Other nature themed art	0 %	Other nature themed art	0 %	Nature themed pictures	0 %
Other nature elements	0 %	Other nature elements	0 %	Other nature elements	0 %	Other nature themed art	0 %
Sound of nature	0 %	Sound of nature	0 %	Sound of nature	0 %	Sound of nature	0 %
Virtual elements	0 %	Virtual elements	0 %	Virtual elements	0 %	Virtual elements	0 %
Water element	0 %	Water element	0 %	Water element	0 %	Water element	0 %

The most versatile range of elements could be found at the workstations, where all the other elements excluding “water element” were reported. The second most diverse range of elements was in the lobbies, where only “virtual elements” were not reported. As could be expected, the least nature elements could be observed in toilet facilities.

5.3 Employers’ contribution to nature connection

One of the aims of the survey was to find out, what kind of action had been taken by the employer in terms of forming nature connection at work. This issue was clarified by the following questions;

- whether there was green design done at the workplaces? (Q.18)
- whether the living nature elements were allowed at workplaces? (Q. 23)
- whether there were more living or artificial nature elements at workplaces? (Q. 20)
- whether the employer offered the opportunity for outdoor activities during working hours? (Q.24- 26)
- whether the employer offered financial support for nature related activities in free time? (Q.27)
- whether the employer organize nature-related well-being days for employees? (Q. 28)

The effects of these actions, the opinions and wishes of the employees are presented in section 5.4.

5.3.1 Green design at work

The question number 18 considered of whether or not green design had been done in the workplace of respondents. The question received 116 responses. As figure 9 shows, out of these, 49% of respondents reported that green design was not done, while only 6% reported that green design was done. As many as 45% of respondents could not say whether green design had been done in the company or not.

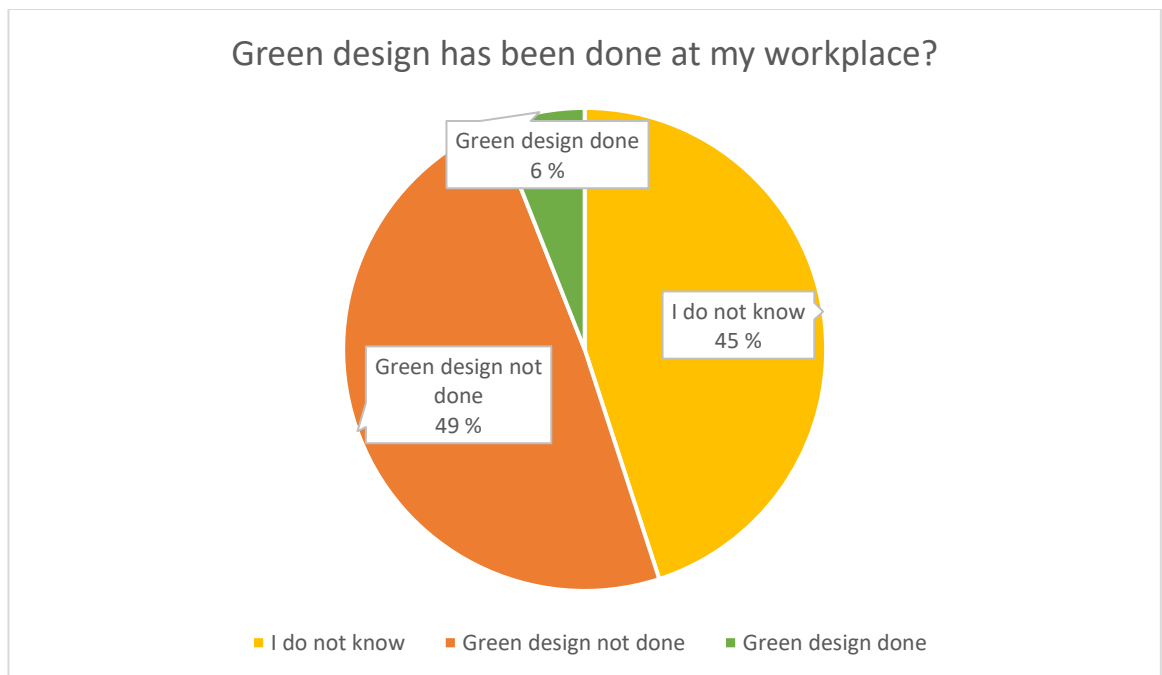


Figure 9. Green design at workplace (N=116)

When viewing the results from the perspective of companies of different sizes, it could be noticed that answers considering green design done at work, were distributed only among companies with more than 250 employees (11%) and companies with 50-250 employees (6%). Moreover, the answers according to which green design had not been done at work increased the smaller the company in question. In smaller firms, it was less likely that the respondent was unaware whether green design was done or not.

When viewing the impact of green design to the amount of nature elements in workplaces, it could be seen that in workplaces where green design had been done, more of all nature elements were reported, as figure 10 indicates.

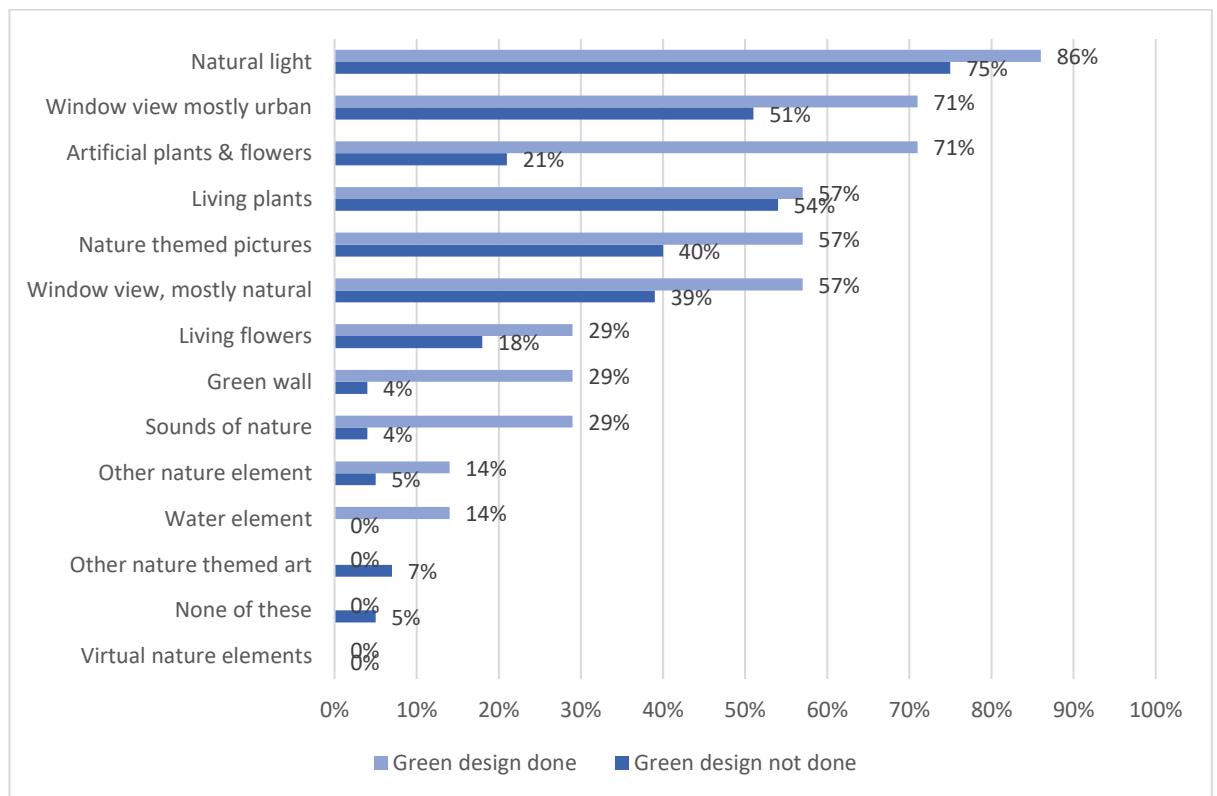


Figure 10. The impact of green design to the prevalence of nature elements at work (N=116)

Of all the natural elements “natural light” remained the most reported element in both occasions, regardless whether green design was done or not. Additionally, the urban window view was more common than natural window view in both circumstances, although the amount of both type of window views increased when green design was done. In terms of the number of plants it could be noticed that green design was influenced more to the prevalence of “artificial plants and flowers” than to the number of “living plants”. Among respondents who reported green design done in their workplaces, 71% reported artificial plants and flowers, while the corresponding number among respondents without green planning done, was 21%. Correspondingly, living plants were reported almost the same amount regardless whether green design was done (57%) or not (54%). The greatest impact of green design, excluding the impact of “artificial plants and flowers” could be noticed in the number of reports considering “green walls” and sound of “nature”. In both

cases 29% respondents reported the element in companies where green design had been done and only by 4%, if green design had not been done.

Green design could be seen to have an impact also on other variants, than to the prevalence of different nature elements. According to results, in those companies where green design had been done, it was more likely that the respondents had also brought natural elements to their workplace by themselves. Moreover, in green-designed companies, employers were more willing to financially support employees' nature related free time activities and organize nature themed wellbeing days to employees compared to companies where green design had not been done.

5.3.2 Artificial and living nature elements at work

The question number 20 considered whether there were more living or artificial nature elements at the workplace of respondents. As the figure 11 shows, out of all 116 respondents 73% reported that the majority of nature elements such as plants and flowers were living rather than artificial. Correspondingly only 12% reported more artificial than living nature elements and the rest 15% could not say whether the majority of nature elements were living or artificial.

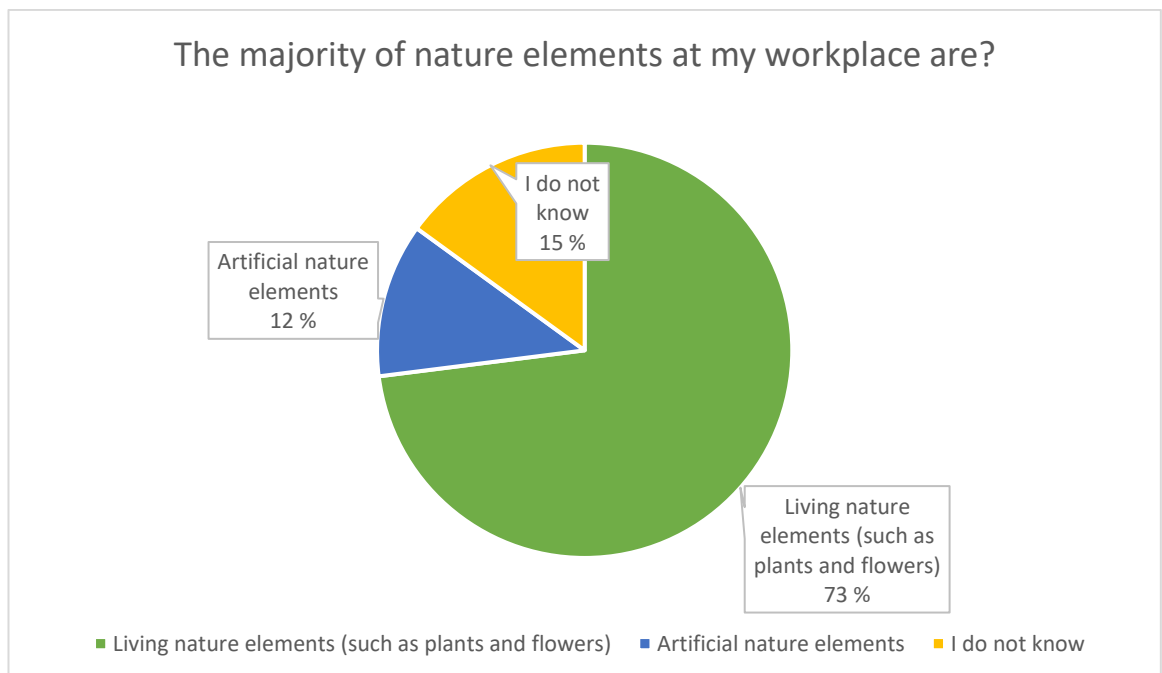


Figure 11. Majority of nature elements at work (N=116)

The question number 23 in turn asked, whether bringing living nature elements to all - or part of the workplace's interiors was allowed or not. By living nature elements, it could be meant living plants and flowers. As figure 12 indicates, majority of respondents reported that bringing living plants and flowers at workplace was allowed corresponding to 59% of respondents, while 17% of respondents report this was not allowed. The rest 24% did not know, whether living nature elements were not allowed or not.

Respondents reporting living nature elements were not allowed, informed that the reason to ban the living nature elements at work, was mostly associated with allergens of plants, referring to fear of allergic symptoms among employees, caused by plants.

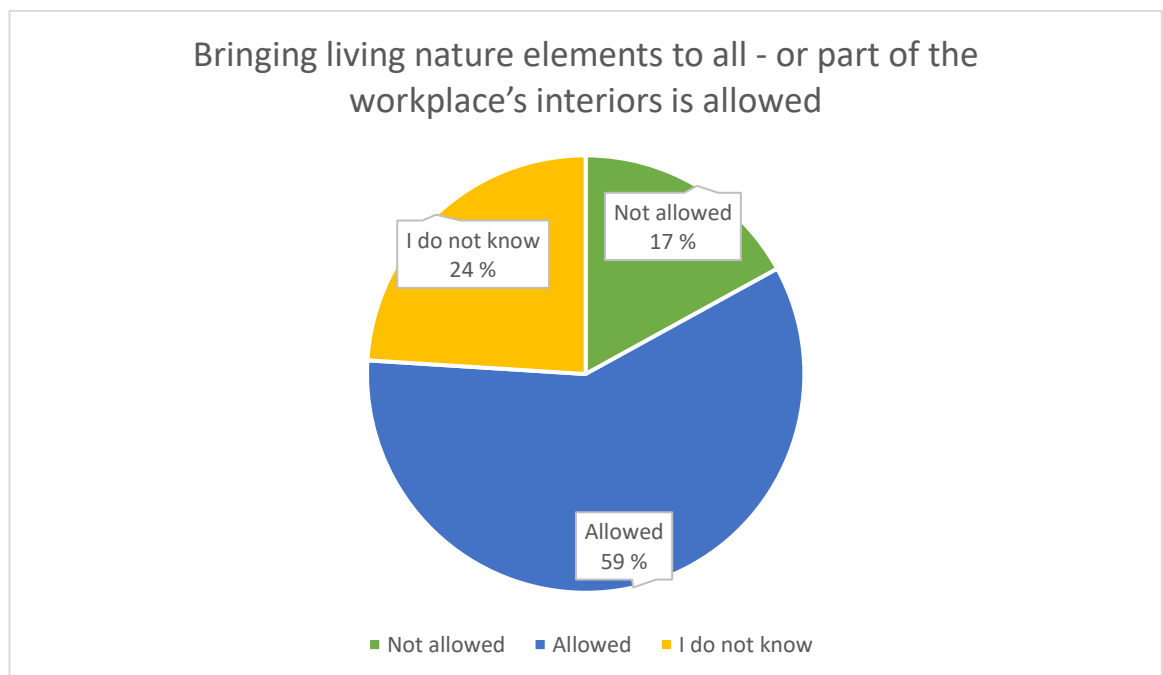


Figure 12. Permission of living nature elements at workplaces (N = 116)

As might be expected, when bringing living natural elements at workplace was allowed, more living plants and flowers were reported than in cases where this was not allowed. However, even when bringing living natural elements at work were not allowed, the proportion of living natural elements remained higher compared to the number of artificial plants and flowers.

Additionally, the size of the company also seemed to have an effect on the likelihood of whether or not the living nature elements were allowed at the workplace. The number of respondents reporting a prohibition of living nature elements increased, the larger the

company were in question. In companies with more than 250 employees, 27% reported the prohibition of living nature elements while only 8% of companies less than 10 employees, prohibited the living nature elements.

5.3.3 Outdoor activity at work

To map the employer's investments on employee's wellbeing, the actions considering everyday life in terms of wellbeing at work were studied. This issue examined with the question 24,25 and 26 by asking whether or not employer offered a possibility to employees, to spend time outside the office during the working hours, how many times per week and how much at the time. By this it could mean e.g. a paid or unpaid period during the working day, agreed with the employer, during which the employee has the opportunity to spend a moment for his or her own wellbeing, for example, by walking outdoors.

The question was chosen in to survey based on the knowledge that such practices exist in some companies. In addition, existence of such practise was observed base on the results, as 36% of the respondents reported they have an opportunity to spend some time out of the office, as figure 13 shows. Out of the respondents, who reported about the opportunity to use working hours for outdoor activities, 81% said they used this opportunity while 19% reported they did not utilize the opportunity. Moreover, 52% of respondents reported that they did not have an opportunity to use working hours for outdoor activity, while 12% said they did not know, whether there was such a possibility or not.

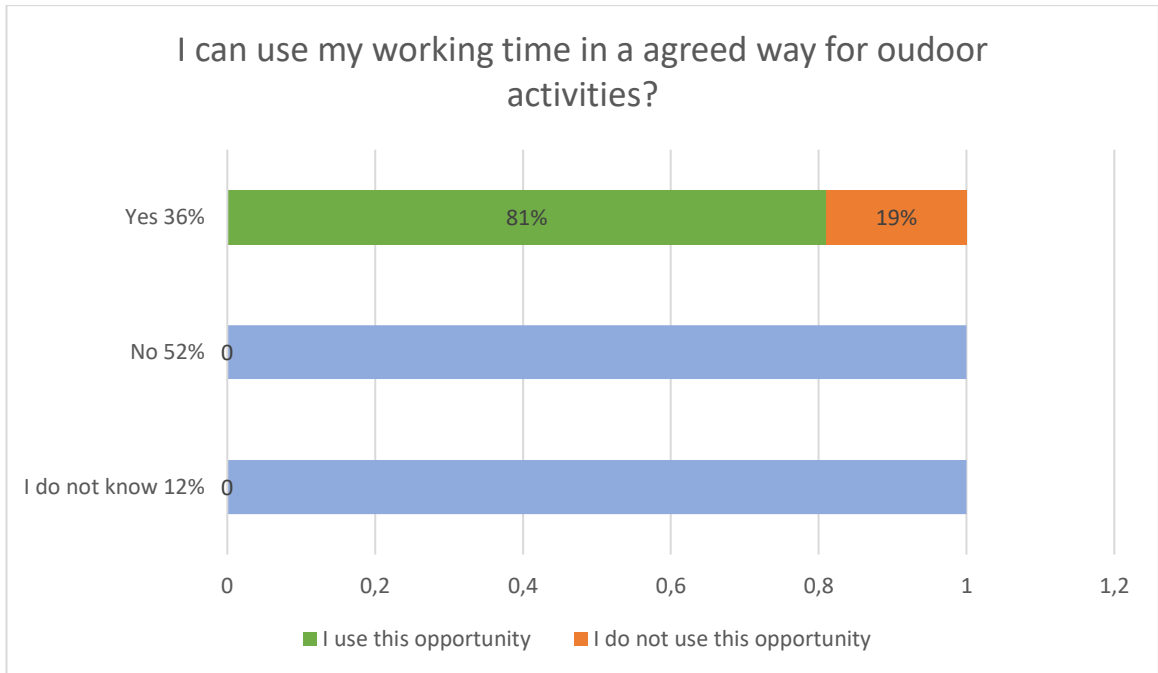


Figure 13. Outdoor activity during workdays

When looking the results in terms of different company size, it could be noticed that responses were received by all company sizes. This indicates that such a practice was not only the exclusive right of for example, entrepreneurs, who are generally freer to influence the course of their workdays compared to others. The responses were evenly distributed among the different company sizes and therefore it was not possible to say whether such a practice was more common in companies of a certain size.

Respondents were also asked how many times a week and how much at a time they had the opportunity to spend time outdoors, by open question. According to the results, distribution was large in terms of use of time. Based on the responses, the time allowed to use outdoors during working hours, was approximately 30-60 minutes per week. However, the majority of respondents reported that the time spent outdoor took place during coffee or lunch breaks or in the form of “walking meetings”. Although this information was not necessarily the original purpose of the question, the answers provided important information, about people willingness to use their breaks or meetings outdoors. Finally, it was asked, whether the people experienced the time spent outdoor to positively effect on their wellbeing at work and according to results, 100% of respondents reported such practise to be beneficial on their wellbeing at work.

5.3.4 The effect of financial support

In the question number 27 it was asked, whether the employer offered financial support for outdoor activities or other nature themed activity during leisure time to employees. As the figure 14 shows, 31% reported financial support while 58% reported not to have financial support. The rest 11% did not know, whether it was possible to get financial support or not.

My employer provide financial support for nature related outdoor activities on my free time?

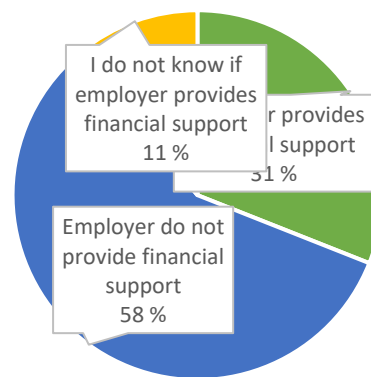


Figure 14. Financial support for outdoor activity on free time provided by employer (N=116)

When viewing the distribution of responses among the companies of different sizes, it could be noticed that the bigger the company, the more likely it was that employer offered financial support to employees for nature themed leisure activities. In companies of more than 250 employees, 39% of respondents reported financial support while in companies less than 10 employees the corresponding number was 15% and only 9% among entrepreneurs. In terms of the form of the received financial support, the most reported form was different benefit vouchers such as culture- and exercise vouchers e.g., Smartum. Additionally, other forms such as passports and applications intended for employees' wellbeing were reported. Some of the employers supported also for example commuting by cycling.

5.3.5 Wellbeing days at work

The last question in the section considering employer's actions to support nature connection at work was the question number 28, considering whether or not employer organised nature themed wellbeing days to employees.

As figure 15 shows, in most of the cases employer organised nature themed wellbeing days to employees corresponding to 46% of cases, while in 40% of the cases this was not done. The rest 14% of respondents did not know, whether employer organized nature themed wellbeing days or not.

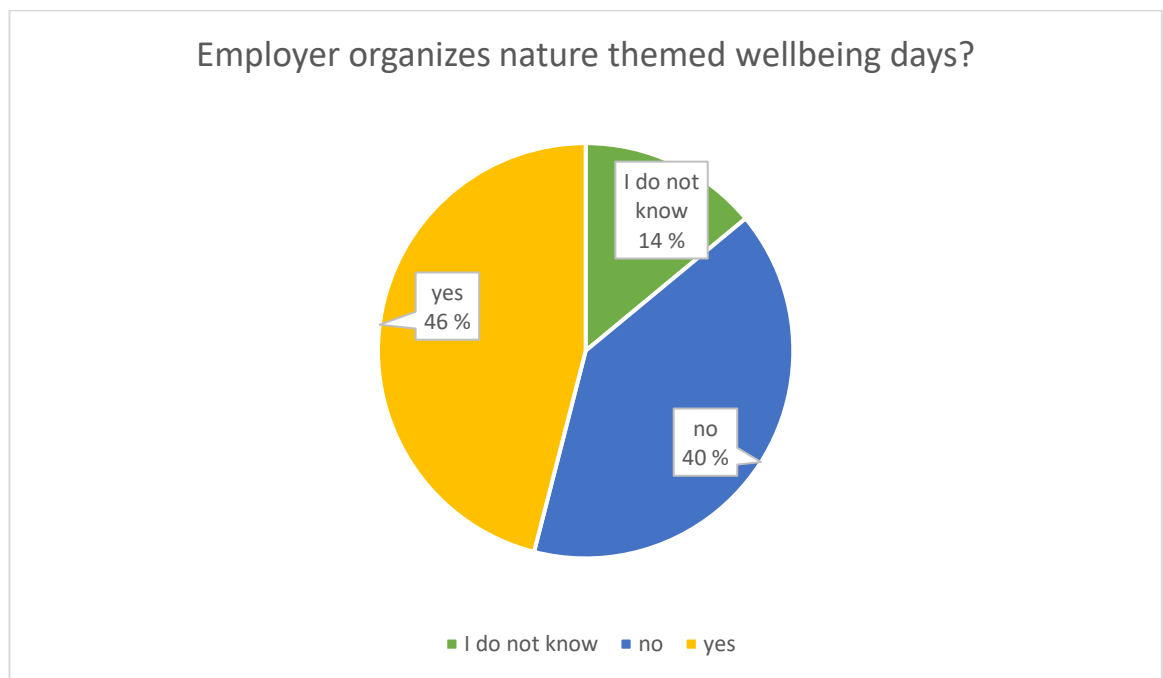


Figure 15. Wellbeing days at work (N=116)

Responses were evenly distributed in terms of different company sizes and according to results, wellbeing days were organised regardless of a company size. Moreover, as mentioned in workplaces where green design had been done, it was more likely, that employer organised nature themed wellbeing days to employees compare to the companies were green design had not been done.

5.4 Perceived effects of nature connection at work

After examining what actions were done by employer in terms of nature connection at work, the effects of these actions on employees were studied. To study this issue, the next questions were asked;

- Whether employees had brought nature elements at workplace by themselves? (Q.19)
- Whether employees felt that nature elements had a positive effect on well-being at work? (Q.21)
- Whether employees desired green design or more nature elements at workplace? (Q.22)
- Other opinions or development proposals for nature connection at work? (Q. 29)

5.4.1 Nature elements of employees

The first question of this section was the question number 19 and considered whether or not employees had brought nature elements at workplace by themselves. According to results it was more likely that employee had not brought any nature elements at work than would have brought, as can be seen from the figure 16.

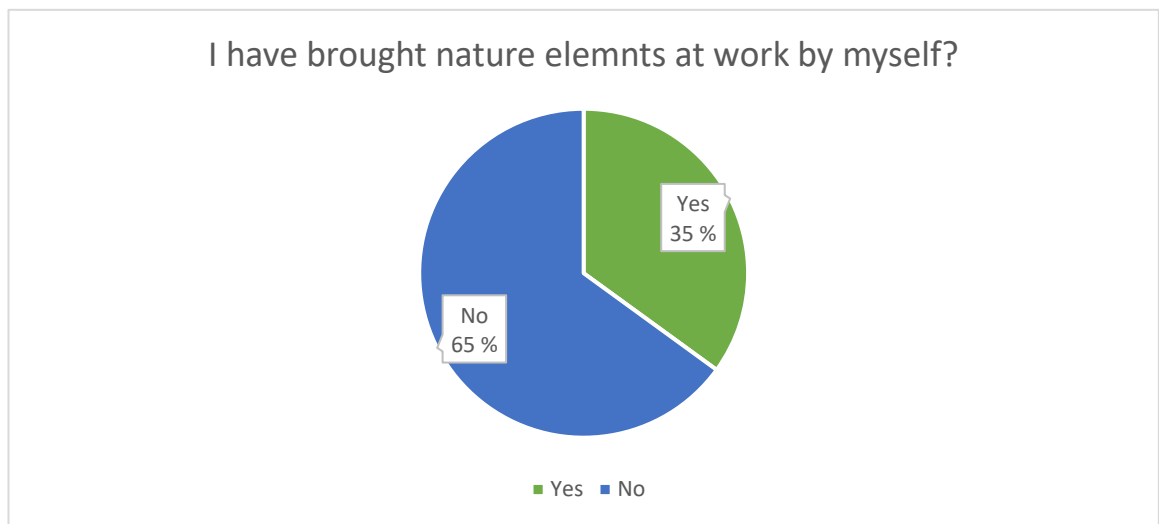


Figure 16. Nature elements brought at work by employees (N=116)

Moreover, respondents who reported bringing natural elements at work were asked, what kind of elements they had brought. Based on the answers "living flowers" were the most common nature element brought to workplace by employees. "Living plants" was second most reported nature element and "nature themed pictures" the third most reported. Other nature elements such as "stones", "branches", "seashells" or "cones", were reported only by few. In addition, in individual responses "nature themed wallpapers at laptop screen", "nature themed video projection" and "smart garden" were mentioned.

As mentioned in an earlier chapter, it was more likely that respondents were brought natural elements at work by themselves, when green design had been done in the company they worked in, compared companies where green design had not been done. The size of the company could not be seen to largely effect on whether employees had brought nature elements at work or not.

5.4.2 Positive effects of nature elements

With the question number 21 it was studied, whether employees felt that nature elements at their workplace had a positive effect on their well-being at work. As the figure 17 shows, majority corresponding 73% of respondents, reported that nature elements have a positive effect on their wellbeing at work, while only 8% reported that they did not experience such an effect. As many as 19% of respondents could not say, whether nature elements had a positive effect on them or not.

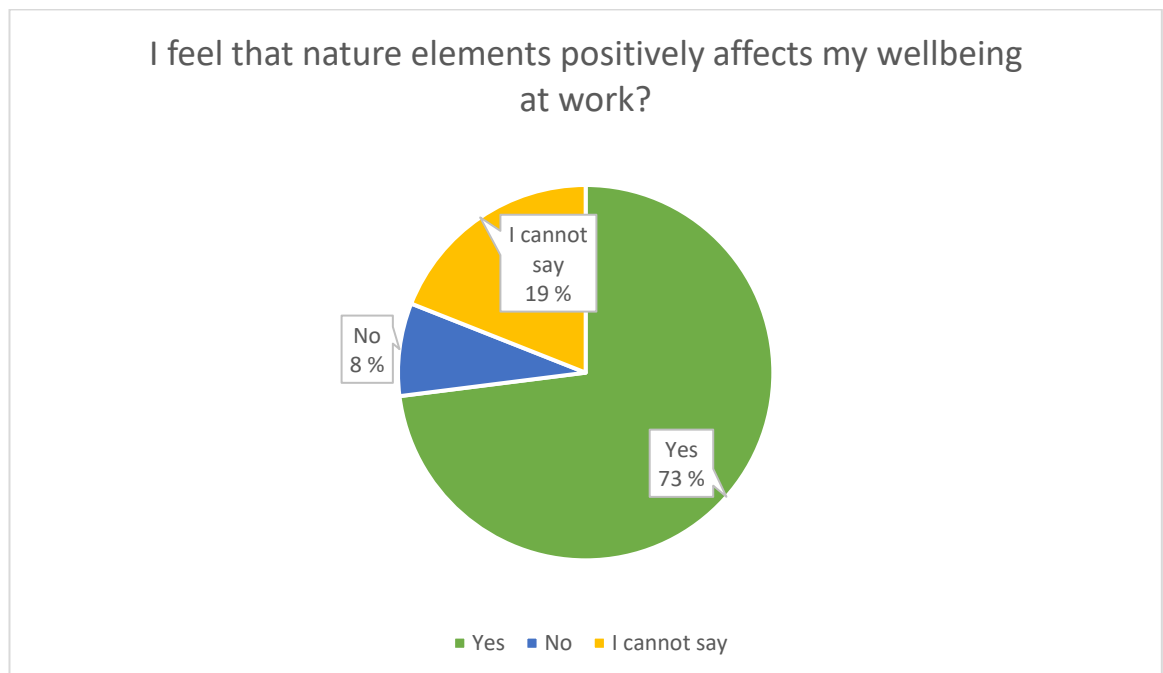
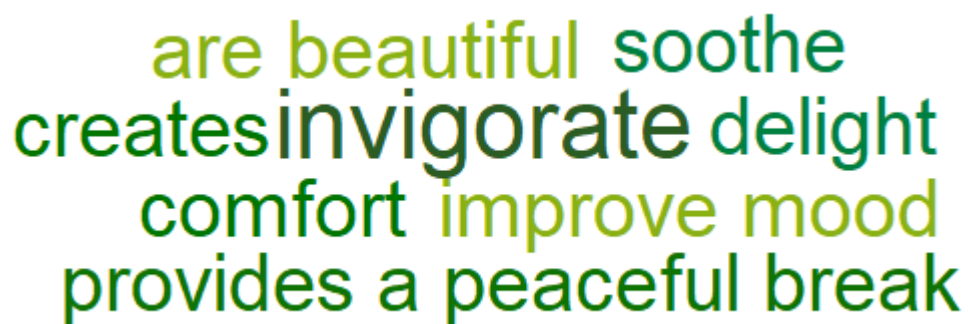


Figure 17. Effect of nature elements on wellbeing of employees (N=116)

When looking at companies where the import of natural elements at workplace was completely or partially prohibited, it was found that a larger number of respondents (85%) reported that natural elements had a positive effect on their wellbeing at work, compared to companies where the import of natural elements was allowed (74%). In other contexts, no

significant differences were found in whether workers felt that nature elements had a positive effect on their wellbeing at work.

Furthermore, it was asked what type of positive effects people experienced while reporting positive effects of nature elements at work. As the figure 18 shows, the most reported positive effect of nature elements at work was the nature element's ability to invigorate the interior. The delighting and soothing effects of nature elements were also mentioned in many responses, as well as the nature element's ability to improve mood and provide a peaceful break. In addition, natural elements were reported in several cases to increase beauty and comfort of workplaces.



are beautiful soothe
creates invigorate delight
comfort improve mood
provides a peaceful break

Figure 18. Positive effect of nature elements in the office environment (N=85)

5.4.3 Quality and quantity of nature elements

After studying whether nature elements had a positive effect on employee's wellbeing, it was examined if employees were satisfied with the quantity of nature elements at work. Therefore, the question number 22 considered, whether or not employees wanted more natural elements or green design for their workplaces. As the figure 19 shows, majority of respondents (78%) said they would like more nature elements for their workplace, while only 22% reported that they did not want more nature elements.

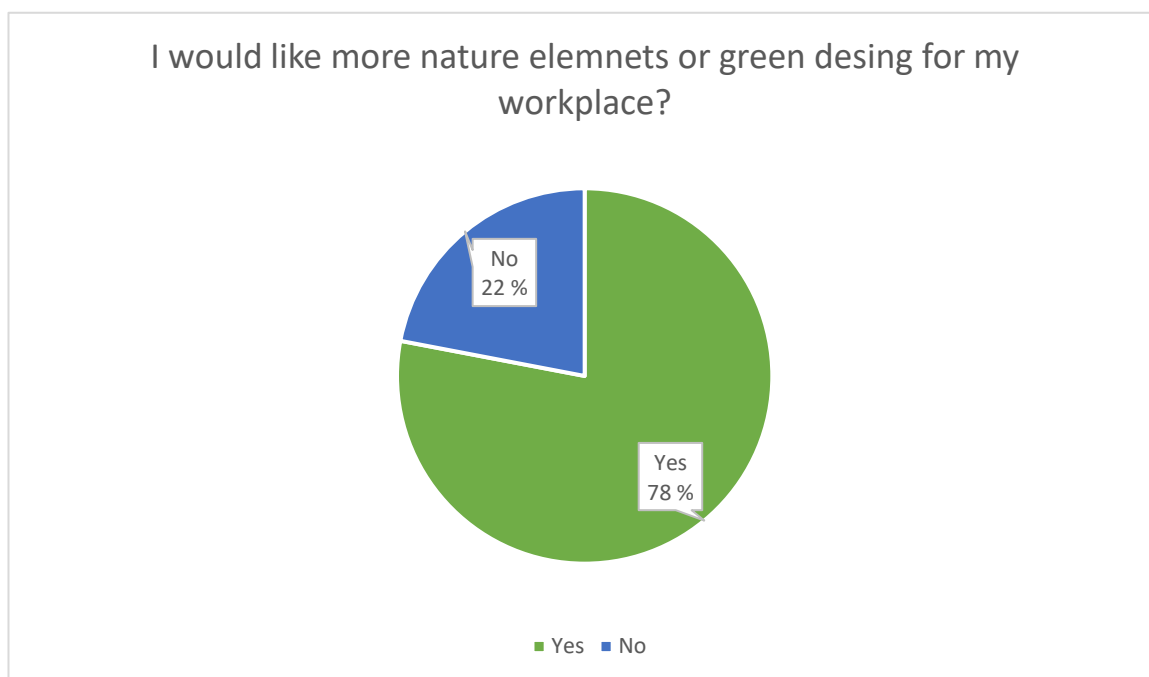


Figure 19. Employees satisfaction with the number of natural elements in the workplace (N= 116)

In addition, it was asked, what kind of natural elements the employees wanted to add to their work environment. According to the results “living plants” were the most wanted nature element to be added at respondent’s workplace. In addition, the plants were especially desired to be large in size, have big foliage and green in color. After living plants, “green wall” was the second most desired nature element in the workplace. Moreover, “water element” was desired by many respondents. “Natural light” and in particular the “window view to nature” was desired by a few respondents. In the few sporadic answers, nature elements such as “sounds of nature” and “living flowers” were also desired.

5.4.4 Comments and development proposals

Lastly, respondents were asked to freely describe what kind of measures they would like with regard to the natural elements of their workplace, with question number 29. This open question gained 20 answers. Below it is presented some of the thoughts of respondents’ considering the level of satisfaction of the current situation at work as well as the wishes for future actions in terms of nature connection. In order to better view the situation, some background information is given considering the size of the company of respondents, reported nature elements at work, as well as other reported benefits such as

time for outdoor activity during work time or financial support for leisure time nature related activities by employer.

The respondents were as follows:

- A. Organization of 10-50 employees, living plants, artificial plants and flowers, nature themed pictures, natural light, window view – mostly urban.
- B. Organization of 10-50 employees, nature themed pictures, natural light, window view – mostly urban, E- pass for leisure time activity.
- C. Organisation of less than 10 employees, living plants, artificial plants and flowers, nature themed pictures, natural light, window view – mostly urban.
- D. Organization of more than 250 employees, living plants, nature themed pictures, natural light, window view mostly natural.
- E. Organization of more than 250 employees, artificial plants and flowers, natural light, window view mostly urban, sea view, possibility for outdoor activity during work time, twice a week.

"Lots of more plants, as the workplace is located in the middle of an industrial area. More encouragement to take a break in nearby areas during the workday." Respondent A.

"In my opinion more nature elements could be used to add comfort in the workplace. I myself have studied Green Care and I am aware of the effects of nature on wellbeing. I would also like more occupational health related activities held outdoors in fresh air." Respondent B.

"Theme days for outdoor recreation at work and more support for outdoor exercise during leisure time. " Respondent C.

"More walking meetings and different events in natural environments. Walking for lunch through park is a great thing. A window view and natural light in the office and in meeting rooms is really important - essential. It offers small important breaks alongside working. Nature and yoga bring a really necessary counterbalance, reminding the body of deeper breathing. Too artificial environments combined with

continuous pressure of profitability and efficiency as well as declining sense of community are threatening wellbeing at work. It feels that the requirements for human wellbeing are still misunderstood. This comes visibly when with technology it possible to create monotonous working environments.” Respondent D.

“I don’t wish any changes, at the moment it is good. “ Respondent E.

The answers were quite different from each other, however also from the answers received to this question it could be seen that respondents desired to add living plants and something green in color into the workspace. Moreover, the responses called especially for more encouragement to take breaks outdoors, better use of the nature around the workplace during breaks and for example meetings and more walking meetings outdoors from the workplace. In addition, more financial support for outdoor activities outside working hours was also wanted. Lastly, better familiarity by the employer with the positive wellbeing effects of nature, as part of holistic wellbeing at work, was desired.

6 Conclusion and discussion

In this chapter first the meaning of the obtained results of the survey are discussed in more detail and considered the use of the results in practice. This chapter additionally aims to answer the research questions set in the beginning, which were;

- What are the key elements for forming the nature connection in the office environment?
- How the quality and quantity of the nature connection is perceived by the office workers?
- What are the perceived effects of the nature connection on wellbeing at work, in the opinion of the employees?
- Is the nature connection in the office environment perceived to be sufficient?
- What are the desired changes in terms of nature connection in the office environment?

Moreover, the results are considered in relation to the theoretical framework and the results of previous studies. Next, the reliability and validity of the study are discussed. At the end of the chapter, it is reflected the work done and the whole success of process, as well as what was learned from it. Finally, proposals for further research have been discussed.

6.1 Consideration of the results

According to results, in almost all of the workplaces of the target group, some degree of natural connection could be observed. However, the nature connection at workplaces was largely formed through individual nature elements and action, instead of systematic proceedings to achieve holistic connection with nature to support the people wellbeing at work. Moreover, plant scaping or biophilic design turned out to be rather rare measure at workplace context. The lack of the comprehensiveness of the nature connection could be additionally observed thought the placement of nature elements, as the nature elements covered only some of the interiors of the workplace. In addition, the possibilities to strengthen nature connection during workdays or even during leisure time, were mostly poorly supported.

However, according to results natural elements and actions done to strengthen the nature connectedness, still had a positive effect on the experienced occupational wellbeing in the workplace context. This could be observed as based on the answers, majority of respond-

ents reported nature elements have a positive effect on their wellbeing at work. The described positive effects of nature elements included improved mood, invigoration and possibility for a peaceful break. The findings can be seen in line with The Attention Restoration Theory (ART) by Kaplan & Kaplan (1989, 183-187) as well as Psycho-evolutionary Restoration Theory (PERT) by Ulrich & al. (1991), suggesting that nature and nature elements help us to focus and renew attention after mental fatigue. Moreover, nature element was reported to effect on the attractiveness of the interior where the nature elements improved the situation. This can be seen in line with the biophilia hypothesis, according to which natural elements appears beautiful for evolutionary reasons, but support also the findings of study by Nieuwenhuis & al. (2014) considering "the relative benefits of green versus lean office space." These findings additionally were able to answer the research question set considering the perceived effects of the nature connection on wellbeing at work, in the opinion of the employees.

Moreover, with the study it was also possible to answer the other research question about which were the key elements forming the nature connection at office environment. According to results, "natural light" and "living plants" were the key elements of direct nature connectedness while the second most common nature elements were "nature themed pictures" and "artificial plants and flowers" presenting the elements of indirect nature connection. In terms of actions done to strengthen the nature connectedness at work, wellbeing days turned out to be the most common way to approach the matter. The results also showed the significance of direct nature connectedness during the work days, as 100% of the respondents reported spending even short time outdoors during the work day to be beneficial in terms of the occupational wellbeing. This however was not common action at workplaces in general and therefore emphasizes the need of such actions at workplace context. These gained results moreover support the findings of Hyvönen & al. (2018) described on page 24, according to which the effect of nature exposure and open air is stronger and longer lasting than the exposure of nature elements indoors.

One of the research questions considered the quality and quantity of the nature connection perceived by the office workers. This question was consisted of two questions considering whether the nature connection in the office environment perceived to be sufficient and on the other hand what are the desired changes in terms of nature connection in the office environment. According to the results most of the respondents would have liked to have more nature elements at the workplace and from different nature elements especially living green plants were desired. It was also found that instead of individual nature

elements, larger entities such as green walls were desired. Based on the answers there is a need to strengthen the natural connection indoors more comprehensively and systematically, instead of focusing on individual randomly placed nature elements. The results are also in line with the theory of Kellert (2015), according to which individual nature elements or nature elements that does not resonate to us from an evolutionary point of view, brings only little support, compared to the comprehensive implementation of biophilic design principles.

Also the last research question considering the desired changes in terms of nature connection in the office environment, was able to answer. According to results as mentioned overall more nature elements indoors were desired, emphasizing the desire of living plants and natural light as well as bigger nature element entities such as green walls. However, when asking the development proposals in terms of strengthening the nature connection at work, only few answers were received. This can be interpreted as an inconvenience in making suggestions for improvement on the questions on the subject, as it may be a foreign concept. This idea is supported by e.g. relatively high response rates for the "I do not know" options e.g. in to the question of whether or not there had been green design done in the workplace, as up to 45% of respondents chose this option. On the other hand, a small number of answers can also indicate satisfaction with the current situation, which is however, challenged by a large number of "yes" answers in question considering whether or not the respondents would like to have more nature elements in the office. The answers to open ended question about the desired changes in terms of nature connection at work, emphasised for example the need of more green color in the office, encouragement to spend breaks or meetings outdoors, financial support for nature themed activities during leisure time as well as the better familiarization of the employer about the positive effects of nature connection on occupational health.

In conclusion the results show that the nature connection at workplaces positively effects on the occupational wellbeing of employees, however can be considered incomplete in many cases. Therefore, measures to systematically strengthen the link with nature in the workplace are still needed. Moreover, the results emphasize the need for a better understanding of the benefits of the nature connection and the means to strengthen it in the context of the workplace. Lastly, based on the multiple studies, actions to invest in people and their health is the key to a successful business. In order to achieve this, all aspects of holistic wellbeing are needed to take into consideration. Therefore,

based on a several studies it is justified to additionally include investments to form and strengthen the nature connection in all kind of workplaces.

6.2 Reliability and validity of the research

In order to evaluate the success of quantitative research it is needed to be viewed in terms of reliability and validity. The reliability and validity of a quantitative study includes the consideration of, both the reliability and validity of the research method and data collecting method and also on the other hand, the validity and reliability of the results and the conclusions drawn based on the results.

The validity of the research method and data collecting method considers how suitable the chosen research- and data collection methods were in terms of measuring the desired features of a chosen phenomenon. The reliability of the method and data collecting tool in turn considers the stability and consistency of the chosen methods. With stability it is evaluated the stability of the method over time. In other words, if the used method is still suitable to measure desired things over time, the method can be considered reliable. The consistency of the study in turns refers whether the different parts of the study measure same things consistently. This can be evaluated by splitting the questions of the study in two and estimating whether the two halves measure same things. (Hiltunen 2009; Kananen 2019, 31-36.)

The validity of the results in terms evaluates whether the validity of the results obtained and the conclusions drawn from them, can be considered valid. Validity can be viewed from the perspective of content-, criterion- and conceptual validity. When talking about content validity, it is examined whether the right kind of questions have been selected in order to be able to study desired features of the phenomenon comprehensively and on the other hand, whether the questions have been operationalized into a measurable form. Criterion validity can be in turn, considered sufficient when the obtained results are in line with general perceptions of the subject, while the conceptual validity refers to the scope of the obtained results. Here, the question is whether the material is sufficient to draw certain conclusions. Lastly, the reliability of the results informs whether the obtained results can be considered random or whether similar results would be obtained if the study were repeated in the same way. (Hiltunen 2009; Kananen 2019, 31-36.)

When considering the validity and reliability of the research- and data collecting method of this thesis, it is question about how suitable the quantitative method and survey as a data collecting method was, to study the question about the existence and occurrence of the nature connections in the office environment. The quantitative research method and survey as a data collecting method was chose as it was wanted to ask the same things in the same way from a large number of people. Moreover, the research was conducted in a predetermined framework based on previous theoretical knowledge, where one of the purposes was to test the validity of existing theories. In addition, the with the questions it was asked of how much and how often certain things happened to which the quantitative research method was suitable. The choice of the research- and data collecting methods can be considered successful, as it was possible to study comprehensively the parts of the phenomenon, that were intended to be studied in the beginning. With the obtained results of the study, it was moreover possible to answer research questions set and solve the research problem, which indicates the success of the selection of the research and data collecting methods.

This indicates also the validity of the results as the questions selected for the study were the right kind, to study the desired issue. Since all the research questions posed could be answered, it can be assumed that the questions were first of all correctly targeted and diverse enough to address the research problem in a sufficiently broad way. Moreover, the size of the material can be considered sufficient, and large enough in order to draw conclusions reliably. The targeted size of a material was 100 responses, which was reached and exceeded. The results could also be considered to be in line with prevailing perceptions of the subject, supporting findings from previous studies such as discussed in the chapter 6. Finally, with the study it possible to produce information that could be considered useful for the commissioner.

In my opinion, the study is suitable to be repeated as it is at another time, even if the first two questions show the impact of the COVID-19 pandemic, and similar results can be expected regardless of time. However, this could be reliably verified only by repeating the study again.

6.3 Self-reflection

Before starting the writing process of the thesis, my goal for the whole project was first of all to find a subject which I found interesting, current but also useful. Therefore, I wanted

to implement the research for the commissioner who could concretely benefit from the results of my thesis. The personal interest of mine and the need for the research met with Oivallusvaara, with whom the thesis process was therefore decided to be accomplished and thus, the first goal set was achieved.

As the chosen topic was interesting and felt meaningful, writing the thesis didn't feel as burdensome as expected. I worked actively and promoted the thesis steadily throughout the process without major breaks in writing. This proved to be a good tactic as especially in challenging times, it was always motivating to see the progress. Although the topic was interesting and somewhat familiar to me, executing the process required extensive familiarization with the material and studying and learning of many new things. However, in my opinion the end result was successful and I was able to create a comprehensive and informative whole, that views the topic holistically.

The original schedule for the thesis process proved to be unrealistic and eventually the working time almost doubled. Creating the survey turned out to be more challenging than expected and therefore took significantly more time than originally scheduled. The content and objectives of the survey were thought several times together with the commissioner, in order to make effective use of the survey results but at the same time, limit the subject as a suitable whole for the thesis.

One of the challenges in survey creation project, was the many differences in the working situations and the operating environment of the target group, although the target group was delimited to office workers and working environment into offices. Despite this, office as operating environment turned out to be very broad, posing challenges in survey creation. The more specific challenge was to try to get the questions to describe the desired environment as accurately as possible in environment where there was a great deal of internal variation between the numerous features. In other words, the operationalization of the variants of the environment turned out to be challenging. However, familiarising more deeply with the previous studies on a similar topic, it was possible to determine several constant variants despite the diversity of environments.

In the end, I think I was able to create a survey that was suitable to, measure the desired things in the desired environment. This could also be seen from the obtained results of the survey, as the produced information about the desired features of the phenomenon. This was due, for example, to continuous testing of the survey and questioning the need for

certain questions throughout the survey creation process. In addition, the research problem and the research question set could be able answered and the reliability and validity of the research can be considered adequate, as described in the [chapter X](#).

Evaluating the survey afterwards, adding a few additional questions considering the effect of financial support and leisure time activities, would have been beneficial. With the survey it was examined the existence of these elements in the workplace, however it would have been beneficial to additionally ask about their impact on perceived well-being, as was done with the question considering the presence of nature elements at work.

One of the challenges related to this was to manage the scope of the survey. The primary purpose was to create a survey that was able to study the desired phenomenon comprehensively enough, however at the same time to be quick and easy enough for respondents to answer.

Overall, the thesis process was interesting, challenging and educational, but also rewarding. I both deepen my previous knowledge and learned many new things about the subjects I wrote. Moreover, familiarising myself better with the theory of the beneficial effects of nature environment enabled to view my personal nature connection from the new point of view and better realize its meaning to me and my own wellbeing. The process inevitably taught also things about my personality, the ways I work, write, manage time and stress and cope with large projects like thesis. As said, I learned that it was a good course of action to steadily write and proceed with the process, despite the progress was sometimes very slow. Regardless of the steady progress of the thesis it was sometimes very hard to cope with the stress. This course of action however ensured the completion of the thesis and proved that I am able to make progress despite the stress and other challenges.

As a sum, I find the thesis successful and the outcome useful. Moreover, I consider the subject important especially in this time during which accelerating urbanization constantly reduces natural environments and therefore the opportunities to benefit from them. As the time spent outdoor reduces, the significance of indoor interiors is emphasized. As the results indicated there were several elements and actions done in terms of nature connection at work, however majority of the workplaces were lacking a holistic approach. Therefore, more research is needed on what matters affect the low use of the nature elements and actions that support nature connection in the workplace context. Moreover, it would be beneficial to study what measures could realistically take into action in order to strengthen the nature connection inside and outside the workplace. This however requires

understanding of the utilization possibilities and benefits of natural environments and natural elements, which I hope this work will provide comprehensive information about the topic, enabling the further research on the subject.

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Appendices

Appendix 1 – Survey.

Luonto työhyvinvoinnin edistäjänä

Hei! Miten sinä voit ja viihdyt työpaikallasi?

Oheisen kyselyn tarkoituksena on kartoittaa enilaisten toimistotyöympäristöjen laatua luontoyhteyden näkökulmasta. Tällä tarkoitetaan mm. työympäristön luontoelementtien määrää ja laatua sekä niiden vaikutusta työhyvinvoinnin kokemukseen. Kyselyn toteuttaa Haaga-Helian restonomiopiskelija Julia Klen osana opinnäytetyötään.

Vastaaminen:

Kyselyn vastaaminen vie muutaman minuutin ja se koostuu monivalintakysymyksistä.

Kyselyn yhteydessä on mahdollista osallistua Luontoyhteys-kirjan arvontaan (arvo 40e). Yhteystietoja ei käytetä muuhun tarkoitukseen. Tiedot poistetaan kyselyn umpeuduttua. Voittajille ilmoitetaan arvonnän tuloksista sähköpostitse. Kysely on avoinna 31.9 asti.

Lisätietoja: Julia Klen, julia.klen@myy.haaga-helia.fi

1. Työskentelin ennen koronapandemiaa pääasiassa? *

- Kotona
- Työpaikkani tiloissa
- Sekä työpaikkani tiloissa että kotona

2. Työskentelen tällä hetkellä pääasiassa? *

- Kotona
- Työpaikkani tiloissa
- Sekä työpaikkani tiloissa että kotona

3. Toimiala, jolla tällä hetkellä työskentelen? *

4. Yrityksen koko? *

- Olen yksinyrittäjä
- Alle 10 henkeä
- 10 - 50 henkeä
- 51-250 henkeä
- Yli 250 henkeä

5. Valitse, millaisia luontoelementtejä työpaikaltasi löytyy. Voit valita useita vaihtoehtoja. *

- Viherseinä
- Aitoja viherkasveja
- Aitoja kukkia
- Tekokasveja tai kukkia
- Luontoaiheisia kuvia tai tauluja
- Vesielementti kuten akvaario tai suihkulähde
- Muuta luontoaiheista taidetta kuten patsaita tai veistoksia
- Luonnonvalo
- Ikkunanäkymä enimmäkseen urbaani
- Ikkunanäkymä enimmäkseen luonnollinen
- Luontoääniä
- Virtuaalisia luontoelementtejä, kuten projisoitua kuvaa tai videota
- Muu luontoelementti, mikä?
- Ei mitään näistä

18. Työpaikallani on tehty vihersuunnittelua? *

- Kyllä
- Ei
- En osaa sanoa

19. Olen itse tuonut joskus työpaikalleni luontoelementtejä? *

- Kyllä, millaisia?
- Ei

21. Koen työpaikalla sijaitsevien viherkasvien tai muiden luontoelementtien vaikuttavan omaan työhyvinvointiini positiivisesti? *

- Kyllä, miten?
- Ei
- En osaa sanoa

22. Toivoisin työpaikalleni vihersuunnittelua tai enemmän luontoelementtejä? *

- Kyllä. Millaisia luontoelementtejä erityisesti toivoisit?
- Ei

23. Luontoelementtien, kuten aitojen kukkien tai kasvien tuominen osaan tai kaikkiin työpaikan tiloihin on kiellettyä? *

- Kyllä. Osaatko kertoa mistä syystä?
- Ei
- En osaa sanoa

24. Minun on mahdollista käyttää työaikaani sovitusti ulkoiluun tai luonnossa liikkumiseen? *

- Kyllä, hyödynän tätä mahdollisuutta
- Kyllä, mutta en hyödynnä tätä mahdollisuutta
- Ei
- En osaa sanoa

27. Työnantajani tarjoaa taloudellista tukea luonnossa liikkumiseen tai muuhun luontoon liittyvään toimintaan vapaa-ajalla? *

- Kyllä. Halutessasi voit kuvailla tarkemmin millaista.
- Ei
- En osaa sanoa

28. Työpaikkani järjestää luontoaiheisia tai luontoympäristössä tapahtuvia työhyvinvointipäiviä? *

- Kyllä
- Ei
- En osaa sanoa

29. Voit vielä halutessasi kertoa vapaasti, millaisia toimenpiteitä toivoisit työpaikkasi luontoelementtien suhteen?

30. Haluan olla mukana Luontoyhteys-kirjan arvonnassa? *

- Kyllä
- Ei