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Master's Thesis

# Fostering Sustainability through Hackathons in the Hospitality Industry

*An exploratory study on how sustainability hackathons are executed and its impacts on employees*

Master of Arts in Tourism

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Ted Waldesten

# Executive Summary

The tourism and hospitality industry have experienced a rapid growth during the last decades, which eventually have resulted in a range of challenges related to sustainability. Due to the growing awareness of the importance of sustainability, education for sustainability in the hospitality sector has been extensively recognised and identified as one of the driving forces to reach a sustainable development. However, there is lack of research on how the hospitality industry provides education for sustainability. One way of fostering sustainability in the hospitality industry are through sustainability hackathons, which are intensive events focusing on "hacking" new sustainability ideas. Consequently, the aim of this thesis is to explore and critically analyse how the hospitality industry executes sustainability hackathons and the impacts this has on the employees.

An intensive case study has been conducted on five hotels of the Scandic Hotels chain. The empirical data has been collected through 15 qualitative semi-structured interviews and facilitated a solid base for the in-depth analysis on how the sustainability hackathon was executed and its impacts on employees. The execution of the sustainability hackathon illuminates how game-based learning and creative problem-solving were critical aspects to foster education for sustainability in the sustainability hackathon. Moreover, the facilitators of the sustainability hackathon, i.e. the General Managers, played an essential part in delivering and shaping the sustainability education, due to their personal interests and background in sustainability. In addition, these facilitators were identified as agents of change as they were important in creating strong impacts on the employees, through their leadership and established culture in sustainability. The sustainability hackathon impacted the employees' cognitive, affective and psychomotor domain and illuminates the learning outputs in each of these domains. However, the facilitators different approaches to the education for sustainability inevitably affected the outcome of knowledge in regards of sustainability. It is thus imperative to understand and see the connections between the different domains, to understand the learning outputs of the sustainability hackathon. Thus, this demonstrates that the impacts of the sustainability hackathon must be understood from a holistic perspective. Nevertheless, the author conclude that Sustainability Hackathons can be a useful tool for creating arenas where expertise from certain departments of the hotel can interact with other professionals to address sustainability challenges.

# Table of Contents

# 1. Introduction

## 1.1. Problem Background

The tourism and hospitality industry have experienced a continued high growth during the last decades to eventually become one of the fastest growing economic sectors and a key driver in the world economy (OECD, 2013; UNWTO, n.d.-c, 2018b). The hospitality industry is considered one of the largest multibillion-dollar industries in the world, consisting of accommodations, recreation, foodservices, entertainment, and tourism (Deale & Barber, 2012). However, the continued high growth have eventually resulted in a range of challenges related to sustainability (OECD, 2013).

Due to the growing significance of sustainability worldwide, environmentally friendly practices and social responsibility have had a growing attention within the hospitality industry (Baumgartner & Winter, 2014; Deale & Barber, 2012). Unsustainable and unethical business practices have been identified as a global challenge to meet sustainable development (Ahmad, Soskolne, & Ahmed, 2012). The growing awareness and interest from corporations regarding corporate sustainable behaviour explains why corporate strategies, behaviours and actions gradually are being more focused towards sustainability (Baumgartner & Winter, 2014). For instance, Holcomb, Upchurch, & Okumus (2007) stress the need for hotel companies to be more proactive in their social responsibility practices, going beyond focusing not only on their guests, but at society at large. In addition, Baumgartner & Winter (2014) elucidates how executives and professionals in the hospitality industry argue their hotels should contribute to a more sustainable development.

However, lack of education on sustainability have been identified as one of the challenges to reach sustainable development (Ahmad et al., 2012; Sheldon & Park, 2011). Complex problems such as sustainability issues, require education on the preservation of the environment and a balanced and sound development of social communities (Correia, Xavier do Valle, Dazzani, & Infante-Malachias, 2010). The hospitality industry is responsible for a large share of society's material, and provides services and products that are not only causing environmental and social challenges, but also provide solutions to these challenges (Carlsson et al., 2015; Chen, 2011). As the tourism and hospitality industry is heavily depended on cultural and environmental

resources (Sheldon & Park, 2011), they have a strong influence on the transition to a more sustainable development (OECD, 2013). Responsible business practices thus are essential to reach sustainable development within the field of tourism and hospitality (Sheldon & Park, 2011).

The 1992 Earth Summit in Rio De Janeiro highlighted the urgency of sustainable development and the necessity of "Education for Sustainability", which was the beginning of cooperation on environmental issues and development (UNCED, 1992). Industry and business at the national and international level were advised to educate and train its employees to acquire the necessary knowledge and skills for implementing sustainable development operations (ibid.). Furthermore, the United Nations highlighted the importance between sustainability and education by declaring the years between 2005-2014 as the "Decade of Education for Sustainable Development" (UNESCO, 2005). Thus, training employees into developing sustainability-related competencies are one of the most important aspects regarding any sustainability-related corporate initiative (Ahmad et al., 2012).

## 1.2 Problem Formulation

Due to the growing awareness of the importance of sustainability, education for sustainability in the hospitality sector has been extensively recognised and more important than never (Deale & Barber, 2012; Liu, Horng, Chou, & Huang, 2017). As the future generation have a strong impact on issues related to sustainability, there is a growing importance of educating future employees, managers and leaders within this field. However, much of the existing research on education for sustainability in hospitality tend to focus on changing and integrating sustainability into the hospitality curriculum at universities  (Annan-Diab & Molinari, 2017; Correia et al., 2010; Deale & Barber, 2012; Sipos, Battisti, & Grimm, 2008; Zizka, 2017). For instance, hospitality programs have initiated specific curricula focused on the development of sustainability knowledge, to meet the current complex sustainability issues (Liu et al., 2017). These changes in the hospitality curriculum are focusing on a more long-term strategy on developing the students' ability to think more critically, systemically, and holistically on sustainability.

However, due to the prevailing issues related to sustainability, it is necessary for not only universities, but corporations, to educate their employees for sustainability already. For instance, Cotterell et al., (2019) illuminated in their study how industry demonstrated a stronger sustainability vision, in comparison to students' and lecturers' visions, based on the fact that industry's vision was more long-term. Horng, Liu, Chou, Tsai, & Hu, (2018) elucidate how the hospitality industry play an imperative role as their products and services can be developed more sustainable. Besides, the private sector holds much of the advanced management systems and technologies that will be imperative to reach the sustainable development goals, thus making it crucial that the private sector takes leadership in sustainability (Annan-Diab & Molinari, 2017). As cultural and natural resources are remarkable strategic resources, education on sustaining these resources could also result in success of the hotel (Deale & Barber, 2012).

Thus, it is imperative that the hospitality industry educate their employees on sustainability (UNESCO, 2005), and there is a "current global urgency to work towards achieving the UN's sustainable development goals by cultivating conscientious tourism caretakers" (Cotterell, Ferreira, Hales, & Arcodia, 2019, p. 15). There is a necessity of empowering practitioners which demonstrates a more holistic and systematic mindset on the complex phenomenon sustainability (ibid.). Eventually, this could impact hospitality employees mindset and holistic appreciation of sustainability (Pappas, Pierrakos, & Nagel, 2013). However, there are various beliefs on how sustainability education should be taught and what it should contain, due to the differences in environmental attitudes and behaviours (Deale & Barber, 2012).

Sustainability hackathons are one of many forms to educate for sustainability in the hospitality industry. Sustainability hackathons are intensive events where people who are not usually related to sustainability have the opportunity to learn and engage in this field by "hacking" for new sustainability innovations. However, there is a lack of research on how the hospitality industry can use sustainability hackathons to educate their employees in sustainability. For instance, Deale & Barber (2012) express the necessity for more research on the educational process of how the hospitality industry can foster sustainability to their employees. Moreover, the main inhibitors for the hospitality industry to take more responsibility in sustainability, are lack of understanding and lack of resources (Sheldon & Park, 2011). Thus, more research is needed which can facilitate understanding for how the hospitality industry can execute sustainability hackathons.

To secure corporate resources for responsibility in sustainability (Sheldon & Park, 2011), it is imperative to understand how the sustainability hackathon are impacting the employees. For instance, Baumgartner & Winter (2014) illuminate the lack of understanding on the value created from sustainability related corporate strategies, behaviours and actions. To fully understand sustainability education and its impact on individual behaviour, reflections on the learning outputs are essential (Liu et al., 2017). Thus, more research on how employee's percept and reflect on sustainability is needed to further develop how to foster sustainability in the hospitality industry (ibid.). Research on knowledge, attitudes and practices in relation to sustainability is scarce, and there is a need of more studies which examine sustainability in relation to the three domains of learning, being cognitive, affective and psychomotor aspects (Salas-Zapata, Ríos-Osorio, & Cardona-Arias, 2018). Thus, the author of this research has identified a research gap, which is the lack of research on how the hospitality industry can foster sustainability through a sustainability hackathon, and its cognitive, affective and psychomotor impacts on employees.

## 1.3 Research Aim and Objectives

The aim of this study is to explore and critically analyse how the hospitality industry execute sustainability hackathons and its impacts on employees.

To achieve this aim, the research has four objectives:

1. To explore theoretical literature pertaining to the nexus of sustainability hackathons and education for sustainability in the hospitality industry, and its impacts on employees.
2. To adopt a qualitative case study on Scandic Hotels and the delivery of sustainability education in their 2018 Sustainability Hackathon.
3. To critically evaluate the relations between how education for sustainability was delivered in the Sustainability Hackathon and the impacts on Scandic's employees.

## 1.4 Significance of the Research

This research contributes by filling a theoretical research gap on how sustainability hackathons in the hospitality industry are executed and its impacts on employees. The theoretical contributions of this research will provide significant insights into how sustainability hackathons are delivered in the hospitality industry and what opportunities and challenges that relate to this. This study can be used by other researchers which seek to receive a greater understanding of how sustainability hackathons are executed in the hospitality industry, and its impact on employees cognitive, affective and psychomotor domains. The practical contributions of this research can provide increased knowledge for not only the hospitality industry, but other businesses in other industries, which seeks to develop how they foster sustainability in their organisation. More importantly, this research clarifies how sustainability hackathons are organised, designed and delivered. Raising awareness of the sustainability hackathon's impacts on employees, can be an imperative aspect for why other industries would seek to foster sustainability in their organisations. Lastly, this research can be used by Scandic Hotels to evaluate their sustainability hackathon and methods for fostering sustainability, in relation to the impacts on the employees.

## 1.5 Thesis Outline

In chapter two, a literature review is presented which highlights the author's selected theories for this thesis, where the main focus is on education for sustainability, critical components of sustainability hackathons, and its impacts on employees. In chapter three, the methodology is presented, which includes methodological considerations, limitations and discussions. A case study on Scandic Hotels 2018 Sustainability Hackathon has been conducted, which is more thoroughly discussed under a case contextualisation in chapter four. In chapter five, the empirical data will be analysed with the selected theories from the literature review. In the first part of the analysis, the author analyses the themes identified on how the sustainability hackathon was executed at five different Scandic hotels. In the second part of the analysis, the author analyses the themes identified on how the sustainability hackathon impacted the employees cognitive, affective and psychomotor domains. Finally, in chapter six, the conclusions, theoretical and practical contributions, and future research are presented.

# 2. Literature Review

*In this chapter, the following theories presented are used to facilitate understanding for the empirical material that has been collected. First, theories on education for sustainability, the concept of sustainability and the SDGs are presented and discussed, followed by theories on sustainability hackathons and its critical aspects. Finally, the chapter explore theories on cognitive, affective and psychomotor impacts of education for sustainability, in relation to the sustainability hackathons.*

To facilitate reading during the literature review, a self-designed theoretical framework has been constructed (Figure 1) by the author, to help the reader get a better overview of the chapter and how the various theories are connected.
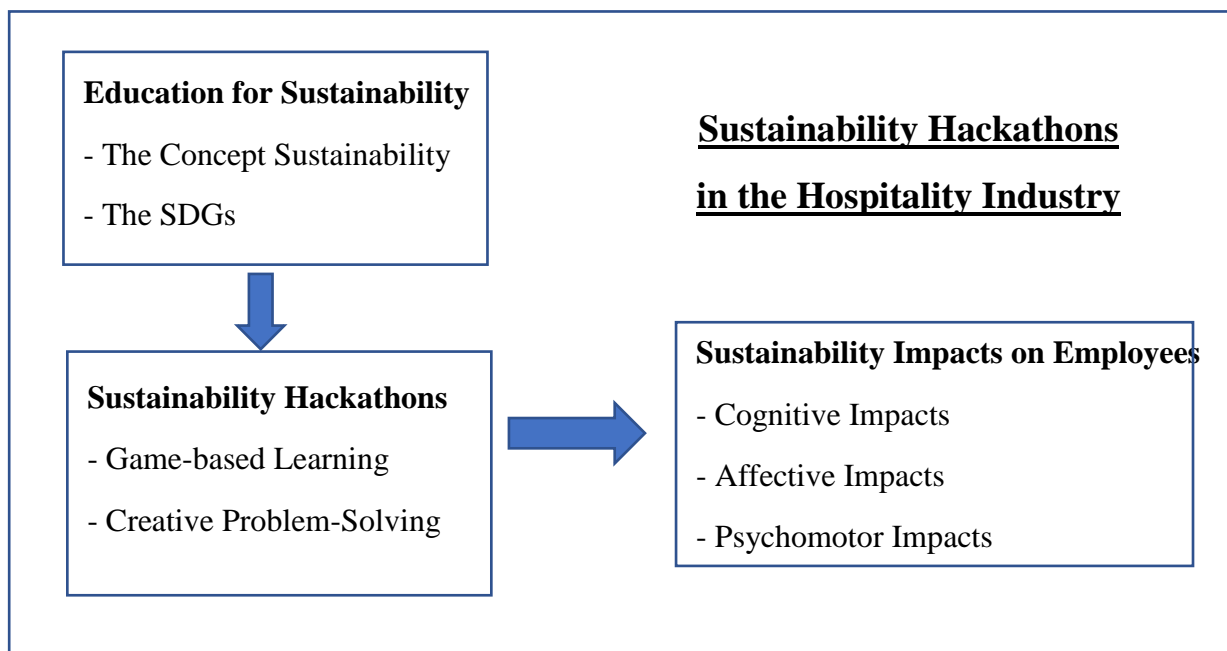
Fig. 1: Author's self-designed theoretical framework.

## 2.1 Educating for Sustainability in the Tourism & Hospitality Industry

The years of 2005-2014 were defined as the United Nations Decade for Education for Sustainable Development (UNESCO, 2005), which emphasised the important relation between education and sustainable development. The continuing importance of the relation between sustainable development and education was highlighted when the UN presented its SDGs in 2015, where goal number four, "Quality Education", was specifically established due to its focus on education for sustainable development (ibid.). Moreover, education has been identified to limit and mitigate unsustainable and unethical behaviour (Zizka, 2017), and has been identified as the strongest driver to promote sustainable development by the UN. This also supports the UNESCO Global Action Programme on Education for Sustainable Development, and the Principles of Responsible Management Education (Annan-Diab & Molinari, 2017).

UNESCO have identified four major thrusts of Education for Sustainable Development: Improving access to quality basic education; reorienting the existing educational programmes; developing public understanding and awareness of sustainability; and providing training (ibid.). While much existing research tend to focus on access to quality basic education and reorienting the existing educational programmes, this study has limited its focus to the concept of "providing training", as it is more closely related to the kind of education the hospitality industry can provide their employees. This is also in line with UNESCO's priority action area number two on education for sustainable development: "Transforming learning and training environments: Integrate sustainability principles into education and training settings" (UNESCO, 2014, p. 14).

Sustainability issues, such as environmental degradation and depletion of natural and cultural resources, climate change and human right issues, have eventually resulted in the importance for corporations in the tourism industry to act more responsible (Sheldon & Park, 2011). Due to this, there have been an increased agreement and engagement on the importance of these kind of corporate responsibilities in the tourism industry (Chiang, 2010; Sheldon & Park, 2011), and it is getting increasingly important for businesses to contribute economically while behaving ethically and improving the quality of life of the workforce, the local community and society at large (ibid.).

It is thus of importance that industry professionals switches attention to sustainability's essential concepts and practices (Deale & Barber, 2012). The private sector has a huge role to play given the fact that they impact local tourism destinations and its communities by striving to develop a healthy environment, stable economy and a well-functional society (UNWTO, n.d.-b). The hospitality industry needs to integrate social and environmental issues into corporate strategies and operations. A part from generating profits, businesses should take care of the environment in which they operate, and seek to create positive social impacts (UNWTO, n.d.-b). The hospitality industry need to be responsible towards all their stakeholders, being employees, customers and the broader society (Cherapanukorn & Focken, 2014). Hotel's that deliver social, economic, and environmental benefits are contributing to the sustainable development and may thus be considered as a sustainable hotel (Baumgartner & Winter, 2014).

## 2.2 Sustainability in the Tourism & Hospitality Industry

In order to successfully educate for sustainability, it is necessary to define the concept of sustainability. Sustainability is often viewed as a fussy and contested term, which require clear standards in regards of sustainability education (Sipos et al., 2008). The heterogeneity and polysemy concept of sustainability may have its origin in the complexity of the phenomenon sustainability itself, which also makes the development towards sustainability more complex (Salas-Zapata et al., 2018). Due to this, the concept sustainability needs to be explicitly defined, as it otherwise may have various definitions and understandings from different people and in different contexts (ibid.). For instance, while one perspective on sustainability may have a teleological understanding which views the concept as a vision, another perspective may use an ontological understanding which rather views sustainability as the actions of certain systems, and a third understanding may view sustainability as the incorporation of environmental criteria into human activities (ibid.).

According to Westerman, Westerman, & Whitaker (2016), there is an agreement that education for sustainable development should be a balanced consideration of environmental, economic, and social factors, to foster the necessary values, commitment and knowledge. This is also known as the triple bottom line, which "focuses on bringing benefits to all constituents, not just the environment (Deale & Barber, 2012, p. 167). However, Cotterell et al., (2019) critique the ambiguity of the balance between environmental, economic and social factors, and emphasise

the need for a more clear conceptualisation of the phenomenon sustainability. However, as stated by Deale & Barber (2012): "a low percentage of hospitality educators actually teaching any aspect of sustainability" (p. 168), the author conclude that a more basic definition of sustainability is suited for this study, as the context is the hospitality industry. Thus, the author define sustainability related to how the term "sustainable development" materialised out of the Brundtland Report in 1987: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 41). The term sustainable development is closely related to sustainability, however, sustainable development is more associated to the incremental managerial approach of sustainability (Annan-Diab & Molinari, 2017).

The most interesting aspect of the Brundtland Report was that it highlighted sustainability as a more complex phenomenon, including not only environmental sustainability, but economic and social sustainability (Pappas et al., 2013). This more complex perception of sustainability also demonstrated how changes in one factor could create unpredictable changes in other factors (ibid.). For instance, changes in environmental sustainability may be due to economic sustainability. For instance, a hotel invests in food waste management which results in decreased food waste and decreased purchasing costs, thus being environmental and economic sustainability. However, the influence and importance of every factor is context based and not always equally balanced (ibid.). In addition, Pappas et al., (2013) claim that social sustainability is the central factor of sustainability, as the nature of human relations are essential in the development of both environmental and economic sustainability. Social sustainability thus has a strong impact in all sustainability efforts, including economic and environmental sustainability (ibid.). According to (Pappas et al., 2013), social sustainability is defined as:

> Social sustainability includes the role of individuals, relationships among social groups, the family, collective behavior, social class, race and ethnicity, health, education, and the role of institutions in society. This includes cultural factors related to the shared values, attitudes, beliefs, behaviors, and social practices that characterize human knowledge and behaviour (Pappas et al., 2013, p. 54).

In contrast to social sustainability, economic sustainability rather relates to the profitable and efficient sustainable development of a product or process, economic health in communities, employment, and the existing business climate (ibid.). In addition, environmental sustainability

relates to its neutral or less negative effects on full life-cycle environmental systems (ibid.), and avoiding over-exploitation or depleting of renewable resources (Fabricatore & López, 2012). The three dimensions of sustainability interplay and creates global effects that are difficult to fully understand in relation to local events, which also demonstrates the complex nature of sustainability (ibid.).

### 2.2.1 The Sustainable Development Goals in a Tourism & Hospitality Context

Developed from the Millennium Development Goals set in 2000, the 2030 Agenda for Sustainable Development emphasised 17 sustainable development goals (SDGs), which were officially adopted by all 193 member states of the UN in 2015 (UNWTO, 2015). The bold agenda is aiming globally at protecting the planet, ending extreme poverty and ensuring prosperity for all by 2030 (UN, 2015; UNWTO, 2015, 2018b). All countries, including those with high levels of development are required to act on issues such as climate change, innovation, and social equality (ibid.).



Fig. 2: The Sustainable Development Goals (SDGs).

The SDG, "Responsible Consumption and Production", is where the hospitality sector particularly could impact the development of waste, waster, energy, biodiversity and job creation into enhanced social, economic and environmental outcomes (UNWTO, n.d.-a). However, Higgins-Desbiolles (2018) critiques this by explaining: "Tourism today has a problem. It is addicted to growth, which is incompatible with sustainability goals" (Higgins-Desbiolles, 2018, p. 1). Thus, the tourism industry has a problematic mindset due to both increasing growth and sustainability simultaneously.

Nevertheless, UNWTO (2018a) state how tourism has the potential to contribute to all the SDGs both directly and indirectly, particularly through the SDGs "Decent Work & Economic Growth", "Responsible Consumption and Production", and "Life Below Water", which have been framed as important areas for tourism to reach the SDGs. OECD (2013) explain that the strongest drivers for organisations to transition towards a more sustainable development are consumer demand changes, environmental issues and corporate social responsibility. However, it is important that all segments of the business are engaged in the achievement of the SDGs (Annan-Diab & Molinari, 2017).

## 2.3 Sustainability Hackathons in the Hospitality Industry

Hackathon, a mix of hack and marathon, are intensive events where, originally, computer developers and programmers create software projects (Zapico, Pargman, Ebner, & Eriksson, 2013). Normally, hackathons run for extended periods between 24-48 hours without pauses. However, hackathons are characterised by many different shapes and sizes (ibid.), which is why the hackathons in the hospitality industry can have different sizes and shapes. Though, it is in particular the long but limited time of uninterrupted work that makes hackathons productive, as the limited time aspect affects the participant to focus and concentrate harder (ibid.). However, conducting a sustainability hackathon in the hospitality industry for an extended period without interruptions can be difficult, as the employees have to focus on sustaining the day-to-day operations and serving guests.

The main purpose of a hackathon is to eventually come up with a finished demo, i.e. an idea that that have been developed and design into a proper finished "product" (ibid.). Depending on the industry, hackathons can focus on various topics, e.g. hacking for social change, developing business ideas or having an environmental profile by focusing on sustainability, i.e. Green Hackathons (ibid.). While green hackathons tend to focus on the environmental aspects of sustainability, sustainability hackathons are focusing on both social, environmental and economic sustainability. Apart from creating interesting results, these hackathons contribute by encouraging collaboration between different communities of practise:

> By bringing people with different expertise to work with problems and with data usually
> reserved for sustainability practitioners and researchers (Zapico et al., 2013, p. 2).

Sustainability hackathons are thus spaces where people who are not usually related to sustainability have the opportunity to engage in this field. Interdisciplinary collaboration and information sharing are two essential factors of the hackathons, which is also why participants are encouraged to work in groups as more various competencies often results in better teams, ideas and outcomes (ibid.). Thus, despite hackathons have an element of competition, it is not the competition itself that is the main driver for participants. Rather, aspects such as involvement in the creative process of developing ideas with other people and contributing to the greater good, are essential drivers (ibid.). This is similar to the term "co-competition", a mix of cooperation and competition, which have been identified as an effective mechanism of learning by encouraging participants to more strongly help each other in solving problems (ibid.). As the hospitality industry consists a range of various positions that are not usually related to sustainability, executing a sustainability hackathon thus encourages the employees to engage in this field.

Thus, the purpose of sustainability hackathons is to "hack" for new ideas in sustainability. To facilitate these innovations, is it necessary that the participants have knowledge in sustainability. However, as the hospitality industry is characterised by a low level of sustainability education (Deale & Barber, 2012), it is imperative that a more basic understanding of sustainability is educated to the participants in the beginning of the sustainability hackathon in the hospitality industry. Deale & Barber (2012) elucidate the various beliefs on how sustainability education should be taught and what it should contain, due to the differences in environmental attitudes and behaviours.

However, previous research on how to educate sustainability have identified critical components, approaches and perspectives, such as using a systems perspective (Pappas et al., 2013), interdisciplinary approaches and problem-based learning (Dale & Newman, 2005) and creative problem solving (Kajzer Mitchell & Walinga, 2017; Liu et al., 2017). These components and approaches mainly have been identified as useful for higher education, but their essences are still important for sustainability hackathons in the hospitality industry. Furthermore, as seen in Figure 3 below, the sustainability mindset is characterised by imperative factors to ensure engagement in sustainability.
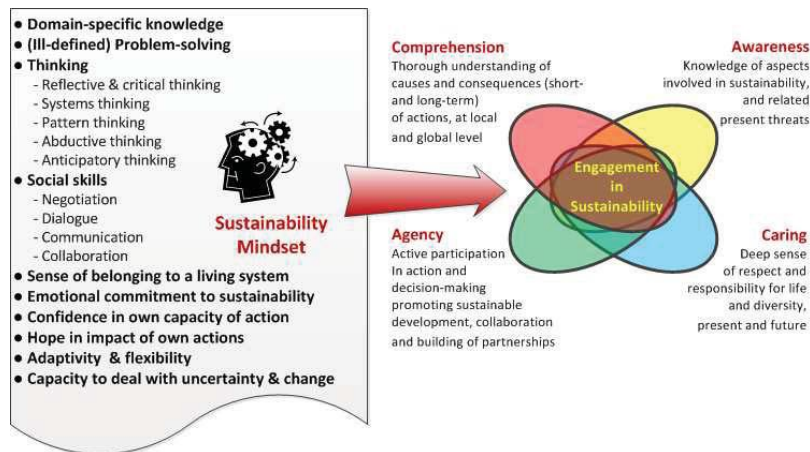
Fig. 3: The Sustainability Mindset for Engagement in Sustainability (Fabricatore & López, 2012).

The sustainability mindset contains many various aspects, such as: Domain-specific knowledge; (Ill-defined) Problem solving; Thinking; Social skills; Sense of belonging to a living system; Emotional commitment to sustainability; Confidence in own capacity of action; Hope in impact of own actions; Adaptivy & flexibility; and Capacity to deal with uncertainty & change (Fabricatore & López, 2012). All these aspects are important to consider for ensuring engagement in sustainability in the hospitality industry. The engagement in sustainability illustrated from the model is also characterised by cognitive, affective and psychomotor aspects, which will be discussed further on in the chapter focusing on the sustainability hackathon's impact on employees. However, the key to ensure sustainability is to go beyond one owns field of specialisation and rather focus on a holistic and long-term systems approach, based on values of equality, justice, solidarity and ethics (Pappas et al., 2013). In addition, previous research on education for sustainability in the hospitality industry mainly emphasise the importance of using pedagogical game-based learning and creative problem-solving (Liu et al., 2017), which will be more thoroughly discussed next.

**2.3.2 Game-based Learning in Sustainability Hackathons**

There are similar characteristics between hackathons and games, as they both build on the collective construction to discover, tackle and develop. The characteristics of games are further explained by Fabricatore & López (2012):

Games foster the collective construction of knowledge, collaboration and sense of belonging by stimulating players to discover and discuss within the gaming community how to tackle mechanisms, quests, rules, and stories that define the game world" (Fabricatore & López, 2012, p. 212).

Games encourage interdisciplinary collaboration and information sharing, to solve the stated quest in the game, which is similar to the structure of hackathons. Thus, game-based learning can be used to educate and foster sustainability (Fabricatore & López, 2012). Sustainability has been identified as a complex ill-defined problem and "a sustainable future is only possible if we understand the systemic interrelations among environment, economic growth and social development" (Fabricatore & López, 2012, p. 210). Thus, to fully understand sustainability, educational models needs to integrate game-based learning and thus facilitate learning for complexity (ibid.).

The first part of hackathons starts with understanding the elements and creating inspiration, which is especially interesting from a game-based learning perspective. This, as stated by Fabricatore & López (2012):

In order to play a game, players must learn about elements of the game system such as goals, entitles and rules, and develop individual and social skills required to succeed (Fabricatore & López, 2012, p. 212-213).

It is imperative to understand the basis structure and rules of a game, as it a determinant of its success. Similar, understanding the basis structure and elements of a hackathon is just as crucial. As without this understanding this, participants will lack motivation to proceed (ibid.). In addition, Fabricatore & López (2012) conclude that: "Sustainability games should be entertaining, so that players feel motivated to play them even outside formal educational settings" (p. 220). Thus, by finding the intrinsic connection between learning and fun, game-based learning emotionally involve and create commitment to engage in sustainability, and participants can thus get a deeper and broader understanding of sustainability when they enjoy what they are doing (ibid.). It is thus imperative that sustainability hackathons in the hospitality industry result in employees' get inspired to engage in sustainability related matters after the sustainability hackathon is finished. Game-based learning are thus an important aspect of sustainability hackathons as they both affect participants' cognitive, affective and psychomotor domains. Thus, these aspects are crucial to further explore in the analysis chapter, to understand

how game-based learning can impact the employees cognitive, affective and psychomotor domains.

### 2.3.3 Creative Problem-Solving in Sustainability Hackathons

Being motivated outside educational settings are important to foster the sustainable development. Practical problem-solving is a key characteristic of hackathons and can affect the participants knowledge and behaviour on sustainability. Liu et al., (2017) emphasise how creative problem-solving may affect the participants through a transformative learning related process, thus affecting them to be creative in- and outside the "classroom". Thus, creative problem-solving processes during hackathons can affect the employees to use creative problem-solving in other contexts after the hackathon.

Similar to Liu et al., (2017), Pappas et al., (2013) discusses how receiving education on sustainability could impact one's mindset and holistic appreciation of sustainability, which eventually could influence one's mindset when involved in other projects (Pappas et al., 2013). However, while education and knowledge has been identified as key in reaching sustainable development (UNESCO, 2005; Zizka, 2017), Pappas et al., (2013) study reveal that only increased knowledge may not be sufficient enough to promote sustainability in a work context. Thus, it is imperative that education for sustainability focus on more than just knowledge, including focus on behaviour, values and problem solving (ibid.).

Thus, creative problem-solving can be an important factor in solving our current sustainable development challenges, according to the UN (2015). The growing interest from academics and practitioners on creative problem-solving is related to understanding the significant changes in thinking, which are essential for radical changes (Kajzer Mitchell & Walinga, 2017). Thus, creative problem-solving is a prerequisite for innovation. However, creative problem-solving is mainly related to cognitive aspects, which is why Kajzer Mitchell & Walinga (2017) elucidates the importance of the affective aspects in creative problem-solving. This is necessary to innovate radical solutions to complex sustainability issues. For instance, by emphasising creative problem-solving through affective aspects during sustainability hackathons, it can impact the employees to use creative problem-solving when engaged in other projects in the

hotel. Combining affective aspects with cognitive and psychomotor aspects, can be imperative for not only understanding sustainability, but also being more creative in sustainability related problem-solving (ibid). Thus, these aspects are crucial in relation to sustainability hackathons, as sustainability hackathons are based on "hacking" for new ideas in sustainability (Fabricatore & López, 2012). Moreover, it is of interest to examine to what extent creative problem-solving can influence sustainability hackathons in the hospitality industry, which will be explored in the analysis chapter.

## 2.4 The Sustainability Hackathon's Impacts on Hospitality Employees

A critical component of education for sustainable development, is to ensure that all divisions of the workforce have the skills and knowledge to perform their work in a sustainable manner (UNESCO, 2005). Hospitality employees' personal development in terms of knowledge, attitudes and practices are important factors and one of the reasons why corporations takes responsibility in sustainability related issues (Chiang, 2010). For instance, a receptionist's knowledge on the organisation's actions in sustainability can be important for guest interactions. Thus, the employees are directly linked to the profitability of hotels (Wang, 2014). Similar, a firm's ethical, legal, economic and discretionary responsibilities to the wider society are particularly important to the hospitality industry, as it can help to strengthen corporate public relations and attract more loyal customers (ibid.).

Towards any successful transition in sustainability, it is imperative to understand how knowledge, attitudes and practices are related (Salas-Zapata et al., 2018). Learning does not only cover mental thinking processes, but also includes attitudes, behaviours and physical skills (ibid.), or as argued by Hoque (2017):

> Learning is not an event. It is a process. It is the continual growth and change in the brain's architecture that results from the many ways we take in information, process it, connect it, catalogue it, and use it (Hoque, 2017, p. 45).

Thus, to fully understand sustainability education and its impact on individual behaviour, reflections on the learning outputs are essential (Liu et al., 2017). Bloom's Taxonomy can be

used to define how well a competency or skill has been learned or mastered, and divides what and how we learn, into three separate domains of learning (Bloom, Furst, & Krathwohl, 1956), further illustrated in the figure below.



Fig. 4: Domains of Learning (Hoque, 2017).

As seen in figure 4, the images of head, heart and hand illustrate the cognitive, affective and psychomotor learning domains (Bloom et al., 1964). These three domains of learning have proven to be important aspects as they can positively impact participants personal experience, resulting in greater knowledge, attitudes and behaviour related to enhancing social, economic and ecological aspects (Hoque, 2017; Sipos et al., 2008). Each domain consist of categories which are categorised from simple to more complex and from concrete to abstract (Anderson & Krathwohl, 2001). A good example of how cognitive, affective and psychomotor aspects relate to each other in a context is presented by Salas-Zapata et al., (2018). In their study, they provide an example which illustrated how participants had the necessary knowledge and attitudes towards sustainability. Despite this, their willingness to engage in sustainability related actions or projects were low (ibid.). This provides a good example of the complexity in dealing with sustainability and demonstrates the importance of understanding the three domains. This is especially important for the hospitality industry, where the actions of all the employees are directly linked to the profitability of hotels (Wang, 2014).

Thus, understanding how knowledge, attitudes and practices influence consistency are important aspects for the educational processes, as it may assist practitioners to develop and design strategies so that the education results into behavioural outcomes (Salas-Zapata et al., 2018). For instance, in the context of hospitality, the taxonomy can be used as a framework for classifying statements of what the employees are intended to learn, e.g. through a Sustainability Hackathon (ibid). UNESCO (2014) have highlighted the importance of providing education in sustainable environments so that participants may acquire knowledge, skills and attitudes that empower them to practice sustainable development. Thus, being aware of these three domains

can assist educators in understanding their craft and continually improving their educating practice (Anderson & Krathwohl, 2001; Krathwohl & Anderson, 2010). Thus, the taxonomy can assist in the impacts from sustainability hackathons in the hospitality industry.

### 2.4.1 Cognitive Impacts of Sustainability in the Hospitality Industry

Knowledge has been acknowledged as an important part in identifying sustainability issues in the hospitality industry (Horng et al., 2018; Salas-Zapata et al., 2018). The cognitive domain encompasses learning skills mainly related to mental thinking processes and intellectual skills and abilities (Hoque, 2017). Furthermore, cognition deals with the recognition of knowledge and the development of intellectual skills and abilities (Bloom et al., 1956; Salas-Zapata et al., 2018), and mental thinking processes include "processing information, constructing understanding, applying knowledge, solving problems and conducting research" (Hoque, 2017, p. 46). This is better illustrated through a model presented by Anderson & Krathwohl (2001) below:
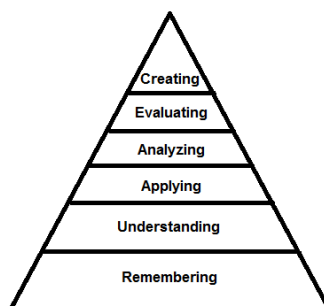


Fig. 5: Model illustrating the levels of the Cognitive Domain (Anderson & Krathwohl, 2001).

There are six, categorises or levels, of different cognitive learning processes: Remembering; Understanding; Applying; Analysing; Evaluating; and Creating (ibid.). These categories progress in cognitive difficulty, and while the lower levels require more basic thinking skills, the higher levels require more complex thinking skills (Krathwohl & Anderson, 2010; Pappas et al., 2013). It is important to emphasise that one cannot reach higher levels of cognitive complexity, without an ability to use the lower levels (Hoque, 2017). Due to this, it may not be more desirable to reach a higher level than a lower level, if the lower levels are not fully learned

(ibid.). However, skills needed in daily life are more applicable at the higher levels of complexity (ibid.).

The cognitive aspects of sustainability are an important part of the hospitality industry, as creating and applying knowledge empowers hospitality employees to innovate, which have been identified as a useful tool in addressing sustainability challenges (OECD, 2013). More knowledge, skills and education on sustainability are necessary to foster new innovative green ideas, which is considered key to success and crucial for the green hotel concept (Horng et al., 2018). For example, an environmental committee could oversee the hotel's environmental policy and promote knowledge regarding sustainability (ibid.). Another example on the cognitive domain related to the hospitality industry, is how an employee with lower levels of cognitive understanding of sustainability, only can remember or basically understand what sustainability is. However, an employee with a higher level of cognitive understanding may rather be able to apply the knowledge in actions and evaluate that action afterwards. Employees directly engaged in sustainability, e.g. housekeeping, would thus benefit strongly from receiving higher levels of cognitive understanding in sustainability.

## 2.4.2 Affective Impacts of Sustainability in the Hospitality Industry

Learning is more than just the mental processes in the brain, which is why the affective domain relates to changes in interest, values, attitudes and the development of appreciations (Bloom et al., 1956). Furthermore, the affective domain also relates to how we connect with a context emotionally (Salas-Zapata et al., 2018), more specific our motivations, emotions, feelings and enthusiasm (Hoque, 2017). Similar to the cognitive model structure, the affective domain model structure forms a hierarchical structure, ranging from basic or to complex feelings. A basic feeling is related to a general awareness towards something, while a more complex feeling eventually guides and controls your behaviour (Hoque, 2017). The affective domain is constructed with five categories, ranging from low to high: Receiving; Responding; Valuing; Organisation; and Characterisation by Value (ibid.).
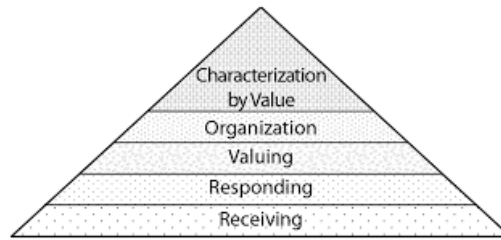
Fig. 6: Model illustrating the levels of the Affective Domain (Hoque, 2017).

An interesting aspect of attitudes related to sustainability is discussed in Salas-Zapata et al., (2018) study, which demonstrated how the participants had a positive attitude towards sustainability in general. However, the willingness to enthusiastically participate did not relate to this attitude. In the example, Salas-Zapata et al., (2018) conclude that the participants value environmental issues, e.g. recycling, the existence of sustainability projects and programs, and the protection and conservation of the ecosystems and environment. Despite these positive values related to environmental aspects, participants were not willing to participate in any of the mentioned sustainability actions above (ibid.). This demonstrates the complexity of sustainability and how to engage participants in this field. Besides, research reveal how the motivation for emphasising sustainability issues in corporations sometimes is related towards sustaining the basis for their operations (Cherapanukorn & Focken, 2014).

Due to this, employee's emotional work commitment is important, as it can improve work processes, especially in ethical and sustainable practices (Wang, 2014). Employees with high affective attachment to the organisation, tend to feel more committed to the organisation and making more efforts at work (ibid.). This also affects the employees organisational learning and innovation capabilities. To achieve a high employee commitment and innovation capabilities, Chen, Chang, & Wu (2012) elucidates how environmental leadership, environmental capability and environmental culture can facilitate proactive green innovations. Thus, organisations which seek to proactively develop green innovations should invest resources into cultivating these three areas, where environmental leadership entails:

> a dynamic process in which one individual influences others to contribute to the achievement of environmental management and environmental innovations (Chen, Chang, & Wu, 2012, p. 375).

These green innovations can be e.g. new practices or products, decreasing costs, seize opportunities and obtain a competitive advantage (ibid.). More specific, an employee working in housekeeping at the hotel can encouraged to think of more sustainable practices related to work environment. Environmental capability is rather a firm's ability to build and reconfigure its resources and competences to accomplish its environmental innovations and environmental management (ibid.). More specific, allocating resources and competences to execute a sustainability hackathon is a good example of environmental capability. Moreover, it is important for the hospitality industry to improve their business model and management thinking to foster and stimulate green innovations (Horng et al., 2018).

### 2.4.3 Psychomotor Impacts of Sustainability in the Hospitality Industry

The psychomotor aspects indicate certain behaviour that is a result of certain cognitive and affective domains (Salas-Zapata et al., 2018). The psychomotor domain relates to the motor-skill and manipulative area (Bloom et al., 1956), being physical and interpretive movements, physical encoding of information, reflex actions, physical functions and movements used to express and interpret information and concepts (Hoque, 2017). Basically, the psychomotor domain encompasses using motor skills and coordinating them. It is required practice in terms of precision, procedures, techniques in execution, distance and speed to develop psychomotor skills (ibid.). To facilitate a greater understanding of the psychomotor domain, a model presented below.
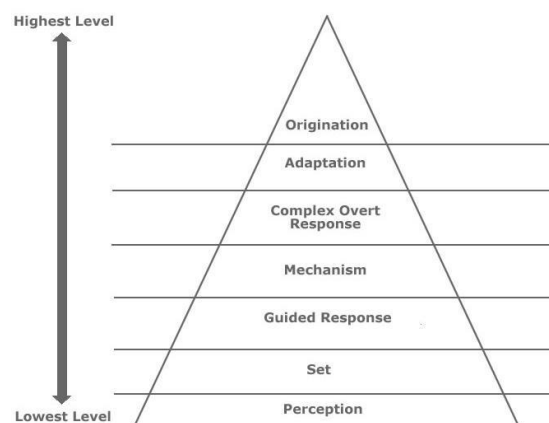


Fig. 7: Model illustrating the levels of the Psychomotor Domain (Hoque, 2017).

21

The model holds the same hierarchical structure as in the two previous models of cognitive and affective domains, where the seven categories ranging from basic to more complex levels of psychomotor: Perception; Set; Guided Response; Mechanism; Complex Overt Response; Adaptation; and Origination. An interesting aspect of the psychomotor domain related to sustainability, is provided by Salas-Zapata et al., (2018), which examined the incorporation of environmentally-friendly activities e.g. recycling, tree planting, using public transport and reducing energy consumption. In the systematic review, a strong correlation between sustainability practices and sustainability attitudes were found, i.e. a low level of attitude resulting in a low level of practices, and a high level of attitude resulting in a high level of practices (ibid.).

According to Chen et al., (2012), the discussion above can be related to environmental culture, which entails the symbolic setting on environmental innovations and management where: "interpretations guide behaviours and processes of members' sensemaking" (Chen, Chang, & Wu, 2012, p. 375). In addition to this, Chen (2011) emphasise how environmental leadership and environmental organisational culture can positively affect the green organisational identity and influence green competitive advantage. Thus, hotels which seek not only to foster proactive green innovations, but positively affect green organisation identity and green competitive advantage, should focusing on enhancing their environmental leadership and environmental organisational culture, which affects both cognitive, affective and psychomotor aspects of sustainability.

# 3. Methodology

*In this chapter, the study's social constructionist ontology, qualitative research approach and abductive approach is presented. An intensive case study on Scandic Hotels is introduced, where the data has been collected through semi-structured interviews and eventually analysed. Finally, the research's trustworthiness, ethics and limitations are presented. Reflections and considerations are presented continuously throughout the chapter.*

## 3.1 Philosophy of Science

To reach the aim of this study, the author started the methodological chapter by reflecting on ontological and epistemological assumptions (Lincoln & Guba, 1994). The purpose behind the considerations of selected epistemology and ontology, is a result of the study's explorative nature and focus on understanding and reconstructing our research participants experiences during the sustainability hackathons. A social constructionist ontology was adopted, as the author's purpose was to interpret and understand how sustainability hackathons were executed, and how this impacted the employees. The author argues this was needed for this study, as there was more focus on the social constructions which created the sustainability hackathons, rather than objective facts (Bryman, 2016). For instance, the social constructions played an essential part in how the participants understood and reconstructed the sustainability hackathons (ibid.). In opposition to realism, where social actors are considered external to the reality and does not shape the objective entities, the social constructionist ontology provided the author with a greater understanding of how social actors perceived the sustainability hackathon, which created the social constructions and thus affected the social entities (Bryman, 2016; Lincoln & Guba, 1994).

Moreover, regarding epistemology, an interpretive approach was embraced by the author. This is defined as where the researcher takes part in the analysis of the research data (ibid.). Through individual subjective realities, the interpretive approach assumes that reality is socially constructed (Creswell, 2007). As the study strived to capture the sustainability hackathons' impacts on employees, the researcher interpreted the reality from the participants' perspective (Bryman, 2016).

## 3.2 Research Approach

### 3.2.1 Qualitative Approach

Due to the study's exploratory nature, the author has embraced a qualitative research approach, which is based on interpretations and understandings (Bryman, 2016). This was important to understand how the hospitality industry execute sustainability hackathons and its impacts on employees. This as the respondents' values and perspectives are important in qualitative research (ibid.), which have been crucial to understand how the sustainability hackathon was delivered and how it impacted the employees. An important aspect in capturing the employees' perceptions and values, has been due to the qualitative approach's strength in its in-depth focus on sensations, environments and words (ibid.). Due to this, the qualitative method has proven useful for reaching the aim of this study, in comparison to the quantitative method, which focus on numbers, measurements, statistical and generalisable results (ibid.). The qualitative approach has presented a more dynamic perception of the reality (ibid.), and the author state that this study has focused more on the human constructions, which has been useful to get a deeper understanding of how the sustainability hackathon was executed and the impacts it had on the employees.

### 3.2.2 Abductive Approach

The author has used an abductive approach, as in the beginning of this research, the author focused on developing a basic understanding of the broad central theoretical foundations within the relevant field of literature. However, as relevant empirical insights were identified in the data collection process, the theoretical framework has been modified and new theories has been added to make it more relevant for this study. Thus, the abductive approach is a mixture of the inductive and deductive research approach (Alvesson & Sköldberg, 2009). These two research approaches differ in the way the author have its research standpoint. For instance, in the deductive approach the author uses a theoretical departure point, while in the inductive approach the author uses an empirical departure point (Bryman, 2016).

The author argue that the abductive approach tended to be useful in this study, as the author could move back and forth between the empirical and theoretical, thus being able to refine and modify the project when new relevant empirical insights were identified (Alvesson &

Sköldberg, 2009). Furthermore, as expressed by Alvehus (2013), the inductive and deductive research approaches both have their own limitations, and it can be difficult for the author to use only one of them. For instance, in the inductive approach it can be problematic to understand an interpretation without understanding the theoretical foundation of the phenomenon (ibid.). However, the abductive approach is more interactive, which was useful in the data collection process (Alvesson & Sköldberg, 2009).

## 3.3 Case Study

A case study was conducted in this thesis, which was an appropriate form of study as the thesis focuses on a specific context. Case studies are suitable when the context is of importance (Yin, 2006), which makes it relevant to use it for this study, as the author has focused on exploring how the sustainability hackathon was conducted at the different hotels, and how this impacted the employees. According to Merriam (1994), case studies are preferable when the case is an example of the several events which illustrates a certain phenomenon. Due to this, the author argue that a case study is of relevance in this study, as the purpose of conducting a case study is to receive a greater understanding of a certain phenomenon (Merriam, 1994). In addition, the lack of academic research on how the hospitality industry deliver sustainability hackathons and its impacts on employees, made a qualitative case study suitable, as case studies tend to explore a specific phenomenon or the behaviour of a group of individuals (Yin, 2006).

There are both intensive and extensive case studies to be considered. However, an intensive case study was most suitable for this study, due to its exploratory nature (Eriksson & Kovalainen, 2008). Intensive case study research aims at understanding a unique case from the inside, through a holistic and contextualised description, which was more suitable, in comparison to an extensive case study, which more relies on the ideals of quantitative research (ibid.). This study's explorative nature, in combination with an intensive case study, resulted in the author focusing on examining fewer objects more in-depth (Bryman, 2016). The author argue it was necessary to conduct a case study to reach the aim of this study, and Alvesson & Sköldberg (2009) argue that case studies are preferred methods when using abductive approaches, which was the case in this study.

### 3.3.1 A Case Study of Scandic Hotels

A case study has been conducted on the Scandic Hotels chain, which is the largest hotel operator in the Nordics (Scandic, n.d a). The portfolio consists of approximately 55.000 hotel rooms distributed over 280 hotels in six countries: Sweden, Denmark, Finland, Norway, Germany & Poland (ibid.). Scandic Hotels is a pioneer within corporate social responsibility and holds the industry's leading sustainability program. In 1993, the innovative sustainability idea "hang up your towel" was introduced, which today can be found globally in most hotel chains (Scandic, n.d b). As stated in Scandic's Annual Report (2017), sustainability has become a part of Scandic's core values: "Sustainability is not only a matter of responsibility for Scandic, it is a business opportunity" (p. 35). Scandic is an organisation with traditions in taking actions in sustainability and social corporate responsibility, which the 16.000 team members of Scandic are considering in their everyday work (Scandic, n.d b). It is of interest to conduct a case study on Scandic Hotels which operates in the mid-market segment (Scandic, n.d b), as Cherapanukorn & Focken (2014) states how luxury hotels mainly are associated with taking responsibility in sustainability issues.

The case study is more specifically focusing on a sustainability hackathon that was executed at five hotels of the Scandi chain during 2018, which will be more thoroughly presented in a case contextualisation in the next chapter. However, to understand the case contextualisation better, it is necessary to briefly introduce Scandic's four main goals in sustainability, as they strategically steer the sustainable development of Scandic Hotels until 2020 (Scandic, n.d b):

- Diversity and Inclusion: Scandic shall be leading in the industry to provide same opportunities for all employees.
- Health: Scandic shall be the top hotel choice for customers prioritizing a healthy lifestyle and being an attractive employer for employees who values a balance between work and leisure.
- $CO_2$ emissions: Scandic shall be the hotel company which has the lowest carbon dioxide emissions.
- Waste disposal: Scandic shall continuously decrease the amount of total waste and increase the proportion of recycled waste (Scandic Annual Report, 2017).

The focus on sustainability across the organisation does not only assist to meet the increased demand from sustainability environmental customers, but also increases employee motivation (Scandic Annual Report, 2017). Scandic strive to work with CSR both within the local community and in connection to larger international disasters (ibid.). For instance, hotels and team members can engage in various activities related to social responsibility through the program "Scandic in Society" (ibid.). In addition, most of the Scandic Hotels have met the new requirements of the Nordic Swan Ecolabel certification/EU Ecolabel (ibid.).

## 3.4 Semi-Structured Interviews

The author's purpose of conducting interviews has been to receive a stronger understanding of the participants' perceptions and understandings of how the Sustainability Hackathon was executed and its impacts on employees. According to Miller & Glassner (2011), interviews are key when the researcher seeks to create an understanding and documentation of the participants' perspectives. The interviews have been crucial in reaching the aim of this study, as they have been an important method to get more in-depth knowledge regarding how Scandic's 2018 Sustainability Hackathon was executed, and how this affected the employees. Moreover, Liu et al., (2017) propose using in-depth interviews to obtain a greater understanding of the learning process on sustainability education in the field of tourism and hospitality. In addition, Yin (2014) states that interviews are considered an important aspect of the empirical data collection when case studies are conducted.

To reach the aim of the study, predetermined questions covering certain themes were prepared in an interview guide. Three different interview guides were prepared prior to the interviews, to adapt to the respondents' background profiles (See Appendix A). The interview guide was constructed partly using the knowledge gained in the literature review, which the author used to select certain important theoretical themes that would cover the interview, e.g. education for sustainability. The questions related to the cognitive, affective and psychomotor learning domains were especially inspired from the literature review, as it helped cover all the aspects of the learning domains (Anderson & Krathwohl, 2001). This shaped the structure of the interview guide that the author developed prior to in the interviews.

However, the structure of the interview guide did not dominantly steer the interview. Rather, the author tried to adapt to the interview by changing the order of questions when necessary, to maintain a better flow of conversation. In addition, in qualitative interviews it is imperative to listen actively to the interviewees' reflections and perspectives, rather than following a certain structure of questions (Ryen, 2004; Trost, 2005). The interview guide was prepared in English, however, the interviews were conducted in Swedish, to enhance a smooth conversation without language barriers. Arguably, this did not affect the quality of interviews, as the author feel confident in both languages.

The author has strived to conduct physical face-to-face interviews. Nevertheless, some interviews have been conducted through telephone. This was done due to both practical and financial reasons, as these respondents were located far away from the author. The overall experience of the interviews conducted through telephone was good, however, minor problems occurred such as problem with the recording. Bryman (2016) explains that one of the negative aspects of conducting interviews through telephone, is the technical problems that might occur. Furthermore, during one of the interviews it was the respondent who finished the interview, rather than the interviewer. According to Bryman (2016) it is easier for the respondents to finish the interview through telephone, than in a physical setting, which is similar to what the author experienced. However, some interviews have been longer, and some have been shorter, due to the participant's state at work. For instance, during one interview, the interviewee asked the author if they could break the interview, as the interviewee had to leave and attend in a special matter. In another interview, the interviewee informed the author prior to the interview, that that they only had a certain amount of time to conduct the interview on. Thus, this interview was conducted somewhat faster in comparison to the other interviews.

## 3.5 Data Collection

Interviews were conducted between 2019-04-01 to 2019-05-10. Overall, the author has conducted 15 qualitative semi-structured interviews. These interviews ranged from approximately 20 minutes to 40 minutes, on an average time of 28 minutes. The respondents were selected using a mix of purposive, snowballing and convenience sampling. In Figure 8 further below (p. 30), a more detailed description of the respondents is presented.

### 3.5.1 Sampling

To reach the aim of the study, purposive sampling was used. Purposive sampling is defined as when you strategically choose the respondents which are relevant for the project (Bryman, 2016). In this case, three different categories of staff at Scandic Hotels have been interviewed. First, one interview was conducted with Scandic's Acting Sustainability Director, which holds a top-management position at the Scandic HQ and was the organiser of Scandic's Sustainability Hackathon. The purpose of this interview was to receive a greater understanding on how the Sustainability Hackathon was organised and why it was implemented at the Scandic Hotel chain. The author strategically selected to interview this respondent, as the respondent held essential information regarding Scandic's Sustainability Hackathon. This interview also provided essential information on which hotels that had conducted Scandic's Sustainability Hackathon, as not all hotels participated in the Sustainability Hackathon.

Second, the author has interviewed the persons responsible for conducting the Sustainability Hackathon at five different hotels, which often was the General Manager or the Hotel Manager of the hotel. The purpose of these interviews was to receive a greater understanding of how the Sustainability Hackathon actually was delivered and executed at the hotels. The contact with these selected respondents were established through a mix of purposive sampling and snowball sampling. With the information provided from the Sustainability Director, the author strategically established contact with these hotels. However, the contact would not have been established without information provided by the Sustainability Director. This process is related to snowball sampling, which is defined as when the targeted sampling results in information and recommendations regarding other relevant persons to establish contact with (Trost, 2007).

Third, the author has interviewed nine employees who participated in the Sustainability Hackathon. These employees held various positions at the hotels, and some of these had a managing position including staff responsibilities. The contact with these selected respondents were established through a mix of snowball sampling and convenience sampling. Through the General Manager or the Hotel Manager, the author received the opportunity to interview other employees at the hotel, which is defined as snowball sampling. However, the author did not strategically select these employees himself, it was rather the General Manager or the Hotel Manager who decided which this respondent would be. This is defined as convenience sampling, as when the sample is being selected as it is close at hand (Bryman, 2016). Thus, it

was the General Manager who subjectively selected a participant that would be a good fit for the interview, or someone who was available during that time, or someone that the General Manager thought would be interested in participating in the interview. Due to this, there is a minor difference in the number of interviewees at each hotel.

### 3.5.2 Selection of Respondents

The author has consciously focused on fewer interviewees with the purpose to gain a more in-depth understanding of these, which are some of the characteristics of qualitative methods (Bryman, 2016). Both employees and managers have been targeted in this study, making it possible to analyse the research problem from different levels.

| Respondent (Fictitious name) | Organisation (Scandic Hotel) | Position at Scandic | Date |
|---|---|---|---|
| Josefine | Headquarters | Acting Sustainability Director | 2019-04-01 |
| Josefine | Järva Krog | General Manager | 2019-04-01 |
| Julia | Järva Krog | Food & Beverage Manager | 2019-04-01 |
| Jasmine | Järva Krog | Hotel Manager | 2019-04-01 |
| Theodora | Täby | Acting General Manager | 2019-05-10 |
| Tilda | Täby | Booking/Receptionist | 2019-04-02 |
| Tanja | Täby | Sales Agent | 2019-04-02 |
| Tyra | Täby | Housekeeping Manager | 2019-04-02 |
| Nicole | No. 53 | General Manager | 2019-04-04 |
| Niklas | No. 53 | Food & Beverage Manager | 2019-04-04 |
| Nelly | No. 53 | Shift Leader Receptionist | 2019-04-04 |
| Daniella | Downtown Camper | Hotel Manager | 2019-04-11 |
| Diana | Downtown Camper | Sales Agent | 2019-04-11 |
| Bertil | Borlänge | General Manager | 2019-04-16 |
| Ben | Borlänge | Head Chef | 2019-04-26 |

Fig. 8: Description of the interviewees (author's self-designed figure).

## 3.6 Data Analysis

Prior to analysing the data, the author strived to get a holistic perspective on the empirical data, by transcribing all the interviews. Bryman (2016) state the importance of transcribing the interviews, as it makes the researcher more aware of the relevant findings in the empirical data. Furthermore, even though it was time-consuming to transcribe all the empirical material, the outcome of it provided the author with a greater perspective on the collected material, which was valuable for the thematic analysis (Harvard Sociology, n.d.). However, it was particularly difficult to transcribe the interviews conducted over telephone, due to poor sound quality. This resulted in a certain words and paragraphs being impossible to transcribe. Nevertheless, this minor loss of data did not seem to affect the overall outcome.

When the all the interviews were transcribed, the author conducted a thematic analysis, which Braun & Clarke (2006, p. 79) define as "…a method for identifying, analysing, and reporting patterns (themes) within data". The author started the thematic analysis by overviewing the data and searching for themes. The author looked for patterns in the data collected, and eventually determined certain themes that would shape the analysis, by "looking for repetitions, similarities and differences, and transitions and linguistic connectors that occur frequently in qualitative data /…/" (Ryan & Bernard, 2003, p. 103). As the study's aim was to get a stronger understanding of how sustainability hackathons in the hospitality industry are executed and its impacts on employees, the author started the data analysis by searching for themes, such as aspects of education for sustainability, game-based learning, creative problem-solving as well as cognitive, affective and psychomotor impacts. However, the author experienced a difficultness in placing certain data under a specific theme, as the data sometimes could be placed under more than one theme. However, the author eventually reviewed, defined and named the themes, before producing the report (Braun & Clarke, 2006).

## 3.7 Research's Trustworthiness

To ensure the quality of this study, the author has reflected upon terms such as reliability and validity, however, in qualitative studies, dependability and credibility are more suitable terms (Lincoln & Guba, 1994). Dependability is concerned with the study's transparency, and the author's ability to logically present how the obtained data was collected, enabling the study to

be reproduced (ibid.). The author has strived to be as transparent as possible in the methodology chapter, providing essential information on the study's design, approach, methods, analysis, and finally, reflections. However, as in all qualitative studies, it is difficult to replicate the study and receive the same results, as social settings are affected by human behaviour and time, as well as the researcher's perceptions of the respondents (Bryman, 2016). To enhance dependability further, the interview guide that was designed by the author, is attached to the appendix of this thesis (Appendix A).

Credibility is concerned with the level of certainty regarding the study's claim and generalisability (Lincoln & Guba, 1994). The author has focused solidly on using interviews as the method of collecting data. Yin (2014) argue that using multiple methods, also known as triangulation, can strengthen the credibility of the study. However, as stated previously, the author is still confident that only using interviews have been the best method to reach this study's aim. The author emphasises that the number of interviews conducted in this study, has been an appropriate amount to ensure the credibility of the study. It was thus the author's intention to focus on a limited number of hotels and respondents, but with the purpose of getting more in-depth material. However, due to the study's qualitative nature, the results in this study cannot be generalised (Denscombe, 2014). This means that the conclusions drawn from the empirical data cannot be generalised to how the sustainability hackathon was executed at the other hotels of the Scandic Hotels chain, or other hotel chains in the hospitality industry. In addition, the conclusions drawn from the empirical data cannot be generalised to how the sustainability hackathon impacted the employees at other Scandic hotels, or other hotels in the hospitality industry. Nevertheless, there is no need to be able to generalise the results either, as this was not the purpose of the study.

Furthermore, it is of importance to acknowledge the researcher's bias. The study's aim has a strong emphasis on capturing the employees' perceptions of how they were impacted from the sustainability hackathon. Thus, continuously reflecting upon the researcher's bias and implicit assumptions, can result in reduced biases influencing the analysis, which also strengthens the validity of the research (Alvesson & Sköldberg, 2009). In addition, the author asked follow-up questions during the interviews to ensure that the author understood the interviewees' responses correctly. Besides, as mentioned previously, the author conducted an internship while the sustainability hackathon was executed, which is why it is particular important to reflect on the researcher's bias.

## 3.8 Research's Ethics

In this study, the author has reflected upon ethical considerations in the data collection process and has strived to fulfil the ethical values and requirements of scientific research. For instance, as stated by Bryman (2016), there are four ethical foundations to consider when conducting scientific research: the harm of the participants; the lack of informed consent; the invasion of privacy; and if deception is involved. In this study, the author started all the interviews by presenting the author, explaining the purpose of the study and what the data was necessary for. The author also explained that he had decided beforehand that all the interviewees' names would be exchanged for a fictitious name in the thesis, thus making the interviewees anonymous. The author did this as he strived to keep the respondent as anonymous as possible, and as keeping the respondents real name would not enriching the study's qualitative aspects.

Thereafter, the author asked for consent to record the interviews, and explained that all the collected data would only be used by the author himself in privacy, and that the author would store all the data in a secure and private way. All the interviewees accepted the interview to be recorded, except one. In this case, the author wrote notes by hand instead, and strived to document as much data as possible during the interview. At the end of all the interviews, the author asked if the respondent would like to withdraw some paragraphs that was stated or some parts of the interview. The author did this to prevent harming of the respondents, which is as stated, an important ethical principle in scientific research (ibid.). In addition, the author explained to the respondents that the findings would be presented to Scandic HQ, and that they would be able to take part of the results when the study was finished.

## 3.9 Research's Limitations

The author argue it is necessary to state that despite the thesis has been developed over one semester, the author still had a limited amount of time collecting relevant data. Nevertheless, as a case study was conducted, it still contributes with comprehensive knowledge to the certain research field (Merriam, 1994), i.e. sustainability hackathons in the hospitality industry. This also encourages future research to be conducted within this specific field (ibid.). Another limitation of the research is how the interviewees experienced it difficult at some points to remember what happened during the sustainability hackathon. One of the reasons to this can be

that the sustainability hackathon was executed approximately six months ago, for about one hour. However, this also illustrates to what extent the sustainability hackathon impacted the employees.

# 4. Case Contextualisation

*In this chapter, Scandic's 2018 Sustainability Hacakthon is introduced more in-depth. Specifically, this chapter contain information on the background of the Sustainability Hackathon, as well as essential information of the Sustainability Hackathon which is necessary to understand before moving into the analysis. The five hotels that were selected for this case study are also introduced.*

## 4.1 Scandic Hotels 2018 Sustainability Hackathon

Scandic's Sustainability Department developed an idea of engaging the rest of the organisation in sustainability, with the purpose to foster sustainability. More specifically, they desired to hear the thoughts and perspectives on sustainability from the employees in the hotels, who are more heavily engaged in the daily operations, as well as the employees based in the headquarters. By understanding the employees' perspectives and insights on sustainability, the next developments within sustainability could be more easily identified. The idea of a sustainability hackathon (SH) was eventually presented, as a marathon with a lot of hacks on sustainability executed throughout the Scandic Hotels chain. Each hotel was encouraged to discover two ideas in sustainability, one environmental and one social, which the local hotel's executive management or head of departments eventually would select and send to the sustainability department.

The development process of the sustainability hackathon (SH) started with the sustainability department innovating the idea of conducting the SH. The sustainability department also developed and modified the relevant material on education for sustainability that would be used during the SH. Participation in the SH was non-compulsory, however, through internal marketing the employees and hotels were reminded and encouraged to participate. It was imperative that the SH was developed as an event that could be executed within a reasonable time frame, i.e. approximately one hour. This was done to mitigate the risks of hotels not having the opportunity to engage in the SH due to day-to-day operations. The SH targeted all Scandic's operating countries, i.e. Sweden, Norway, Denmark, Finland and Germany, and the invitation to the hotels was sent out in August 2018, allowing the hotels to participate until the end of October 2018. The SH resulted in a new voting record on Scandic's internal communication program, engaging many employees across the operating countries. The winner was finally

presented in February 2019, resulting in a vote record and highest engagement ever on Scandic's internal communications platform.

All the hotels of the Scandic chain holds the Nordic Swan Ecolabel, which means that the hotels must conduct one information gathering each year, where a facilitator educates the employees on the Nordic Swan Ecolabel certification and requirements. However, Scandic's sustainability department sought a way to go beyond the information gathering of the Nordic Swan Ecolabel, simultaneously using this gathering to foster education on sustainability and communicate how Scandic work with sustainability, through the shape of a sustainability hackathon. Thus, by enhancing effectiveness, these two events could be merged, which meant that the hotels would not have to spend any additional time on conducting the SH.

### 4.1.1 The five selected hotels of the Scandic chain

Five hotels were strategically selected, due to their differences in size, location and quality. These hotels were, Scandic Borlänge, Scandic Downtown Camper, Scandic Järva Krog, Scandic No. 53 and Scandic Täby. None of the facilitators (General Managers and Hotel Mangers in this case) had previously received any education for sustainability, apart from the many educations provided by Scandic which to some degree involve sustainability. However, they do possess a certain level of knowledge in sustainability, due to their personal interest and as it is required to enable a smooth operation at the hotel, e.g. following the guidelines from the Nordic Swan Ecolabel. In similar, none of the employees had received any education for sustainability, but many of them demonstrated a high passion for sustainability. Despite Scandic not using stars to rate their hotels, the author has chosen to use the star ratings provided by *Hotels.com* and *Trivago.com*, to demonstrate the differences in quality below.

➢ **Scandic Borlänge** was built in 1975 and is located in Borlänge, which is approximately 220 km northwest of Stockholm, Sweden. The hotel has 141 rooms and is rated with three stars. At Scandic Borlänge, the SH was executed during approximately 40-45 minutes, where ten minutes was spent on education for sustainability and 30 minutes on brainstorming ideas.

- **Scandic Downtown Camper** was built in 2017 and is located in the heart of Stockholm. The hotel has 494 rooms and is thus one of the largest hotels in Stockholm. Downtown Camper is one of Scandic's signature hotels and is rated with four stars. Due to its unexpected high growth and popularity since its opening, only nine out of 200 employees had the opportunity to engage in the SH. However, the other employees still had the opportunity to brainstorm ideas outside the SH setting, which they could provide to their nearest leader. The SH was conducted during approximately one hour, where half of the time was spent on education for sustainability and half the time spent on the brainstorming session.

- **Scandic Järva Krog** was built in 1971 and is located in one of the boroughs slightly outside the central parts of Stockholm. The hotel has 215 rooms and is rated with three stars. At Scandic Järva Krog, the SH was executed during approximately one hour, where 35-40 minutes was spent on education for sustainability and 20-25 minutes on brainstorming ideas. Approximately 30 employees out of a total of 45 employees, participated in the SH at Scandic Järva Krog.

- **Scandic No. 53** was built in 2014 and is located in the very central parts of Stockholm. The hotel has 273 rooms and is rated with three and a half stars. At Scandic No. 53, the SH was executed during approximately one and a half hours, where 45 minutes was spent on education for sustainability and 45 minutes on brainstorming ideas. Approximately 50-60 employees participated in the SH at Scandic No. 53, which was about 80% of the total employees.

- **Scandic Täby** was built in 1982 and is located in Täby municipality, which is located approximately 15 km's north of Stockholm. The hotel has 122 rooms and is rated with three stars. At Scandic Täby, the SH was executed during approximately one and a half hours, where 30 minutes was spent on education for sustainability and one hour was spent on brainstorming ideas. Approximately 25 employees participated in the SH at Scandic Täby, which was about 75% of the total employees.

# 5. Analysis

*In this chapter, the study's empirical material is presented and analysed with theories presented in the literature review. The sections in the analysis holds a similar structure to the literature review, where the analysis of Scandic's Sustainability Hackathon contain section such as Education for Sustainability, Sustainability Concepts, Game-Based Learning, and Creative Problem-Solving. Under each section, the most prominent themes are analysed and discussed.*

## 5.1 Education for Sustainability at Scandic's Sustainability Hackathon

In order to get a deeper understanding of how Scandic's sustainability hackathon was executed, it was necessary to explore the educational aspects of the SH. A theme identified from the empirical data, was how the facilitators, i.e. the persons executing the education, stressed the importance of educating the employees in sustainability through the SH. Education for sustainability has been identified as the strongest driver to promote sustainable development by the UN, due to the strong relation between education and sustainability (UNESCO, 2005). Moreover, there was a certain focus during the SH on providing education for sustainability ar(EFS) to employees with the lowest levels of knowledge on sustainability, as stated by Josefine:

> /.../ the most important thing is that the employees with the lowest levels of education and knowledge on sustainability have taken one step up and received knowledge on what Scandic is doing, and what everyone should be doing (Josefine).

The quote above illuminates the facilitators' focus on ensuring the employees' development in sustainability, in particular employees with a lower knowledge of sustainability. Ensuring EFS has been identified as the strongest driver to promote sustainable development by the UN (Annan-Diab & Molinari, 2017). This empirical finding is especially important, and contradicts Deale & Barber (2012) statement on how most hospitality educators does not teach any sustainability education at all. Moreover, EFS has been identified to limit and mitigate unsustainable and unethical behaviour (Zizka, 2017). From that perspective, the facilitators' focus on ensuring all the employees' understanding of sustainability is an important aspect for the sustainable development of the hospitality industry. For instance, developing the employees with lower levels of sustainability knowledge, can impact their decisions to limit unsustainable

behaviour, e.g. identifying new ways to mitigate food waste. In addition, this is also in line with UNESCO's priority action area number two on education for sustainable development: "Transforming learning and training environments: Integrate sustainability principles into education and training settings" (UNESCO, 2014, p. 14). Thus, from these aspects, the SH could be categorised as a training setting providing EFS, to foster sustainability.

One of the more protruding themes addressed by the facilitators during the interviews was the connection between Scandic and sustainability. While some of the aspects on sustainability might have varied through the education, one thing that remained consistent was the facilitators emphasis on explaining Scandic's standpoints in sustainability. For instance, two of the facilitators stated:

> It is extremely important with sustainability and we need to act now, not only at Scandic but everywhere. And it is important to really show the employees of Scandic, that we really focus on these questions (Theodora).

> I hope that the Sustainability Hackathon affected the employees in a way that makes them change something in their daily life. I don't believe that they remember all the information that was presented by heart, but I believe that you get affected by certain things. And I hope, above all, that they understand what kind of organisation that they work for, and that they realise that we actually work with these kinds of questions and that it is important to us. That it is something that we do not only say, but something we live for (Josefine).

The quotes clearly show the educational focus on creating an impact on the employees by emphasising Scandic's standpoints and values in sustainability. Scandic has strong standpoints and values in sustainability and is an organisation with traditions in taking actions in sustainability and social corporate responsibility (Scandic, n.d b). The facilitators addressed that their key take-away points related to educating how Scandic consider sustainability important, and their actions within this field. Moreover, as stated in Scandic's Annual Report (2017), sustainability has become a part of Scandic's core values: "Sustainability is not only a matter of responsibility for Scandic, it is a business opportunity" (p. 35). Scandic's values and standpoints can also be better understood by reading Scandic's Sustainability Goals previously presented (see p. 26 of this thesis). It is getting increasingly important for businesses to contribute economically while behaving ethically and improving the quality of life of the workforce, the local community and society at large (Chiang, 2010; Sheldon & Park, 2011).

This can be one of the reasons why Scandic integrated a strong emphasis on discussing Scandic's standpoints in the EFS during the SH. Besides, it is getting increasingly important for the hospitality industry to be responsible towards all their stakeholders, including employees and the broader society (Cherapanukorn & Focken, 2014). Due to this, integrating the aspects of Scandic's standpoints in the SH could have been strategically correct, as it could have created an understanding in employees on how to act in line with Scandic's visions and goals. This is important, as hotel's that deliver social, economic, and environmental benefits are contributing to the sustainable development and may thus be considered as a sustainable hotel (Baumgartner & Winter, 2014). Moreover, information on what Scandic has accomplished in sustainability was delivered during the SH:

> A timeline was shown with some of the things we have done in sustainability since our journey started in 1993. And it is actually quite encouraging to see how we have worked with these questions in sustainability, and to feel a certain pride (Josefine).

> Scandic has always been great on sustainability and that generates a pride for Scandic /…/ Scandic has always been successful in sustainability, even before it was modern to discuss sustainability. So, I would say we are a pioneer and that creates a sense of pride (Daniella).

These quotes are another example of how the sustainability education focused on delivering impacts of what Scandic has accomplished in sustainability. As stated in the quote, the facilitators emphasised the importance of delivering a sense of pride over Scandic's accomplishments in sustainability. Employees with high affective attachment to the organisation, tend to feel more committed to the organisation and making more efforts at work (Wang, 2014). This also affects the employees organisational learning and innovation capabilities (ibid.), thus affecting the employees to be more motivated to learn about sustainability during and after the SH. Creating emotional commitment is important for the employees in obtaining the necessary sustainability mindset (Fabricatore & López, 2012).

## 5.2 Sustainability concepts in Scandic's Sustainability Hackathon

While all focusing on education for sustainability, the facilitators differ on the aspects of sustainability they would like to educate participants i.e. environmental, social and economic sustainability. For instance, Nicole elucidates that the most important message of the SH was

to enlighten the employees of the broader spectra of sustainability, including both environmental, social and economic sustainability:

> /…/ it is economically to be environmentally friendly. And to focus on social sustainability
> in the long run will also have economic effects on profits (Nicole).

This quote provides an example of a broader understanding of sustainability and how the different factors are interconnected. According to Pappas et al. (2013), this is a more complex understanding of sustainability as it demonstrates how changes in one factor affects the other factors. Understanding how sustainability is interconnected are imperative for the employees of Scandic, as hotel's that deliver social, economic, and environmental benefits are contributing to the sustainable development and may thus be considered as a sustainable hotel (Baumgartner & Winter, 2014). Being considered a sustainable hotel, is in line with Scandic's values and goals in sustainability, which is why a holistic understanding is imperative to be educated to the employees.

However, not all facilitators focused on elucidating both environmental, social and economic aspects of sustainability. In contrast, Bertil rather focused on the environmental aspects of sustainability:

> So, we highlighted this with the heavy consumption on the planet. And that we currently
> are consuming equally to 4.2 Planet Earth's. So, that was the intro before the brainstorming
> (Bertil).

Sipos et al. (2008) explains how sustainability is often viewed as a fussy and contested term, which the author argue could be one of the reasons why the facilitators' EFS varied throughout the SH. Subsequently, despite all the facilitators were provided with a PowerPoint containing relevant information to execute the SH, it was still up to each facilitator to decide what to specifically emphasise and educate. The implications of the facilitators educating sustainability differently, can impact the employees' understanding of sustainability. Consequently, the employee's personal development in sustainability and development of necessary values in sustainability are at risk. This as both economic, environmental and social aspects are necessary to be educated to the employees to ensure the fostering of necessary commitment, knowledge and values in sustainability (Westerman, Westerman, & Whitaker, 2016).

However, Salas-Zapata et al., (2018) state that the development towards sustainability becomes more complex due to the polysemy concept of sustainability. The concept sustainability needs to be explicitly defined, as it otherwise may have various definitions and understandings from different employees (ibid.). Thus, either did the PowerPoint during the SH not have a clear conceptualisation of sustainability, or did the facilitators simply not pay enough attention to what conceptualisation that was provided in the PowerPoint. Sipos et al., (2008) express the need for a clearer conceptualisation and standards in regards of sustainability education. Thus, to ensure a more holistic approach to sustainability during the SH from all facilitators across all hotels, a clearer conceptualisation and standards in regards of sustainability education could be provided.

Moreover, while different aspects of sustainability were educated in the hotels, one factor that remained the same across all interviews were the facilitators focus on emphasising how to deliver a strong feeling towards sustainability. Some aspects of the material presented in the PowerPoint was emotionally heavy and presented examples on some of the current challenges in sustainability. For instance, Josefine explains how strong examples were presented during the SH:

> In the beginning, quite a lot of concern could be felt, and there were quite a lot of discussions. This as it was some severe statistics and information presented regarding sustainability. As when one finds out that it takes 125 flushes in the toilet to create one t-shirt. Such basic, but strong examples like that was presented (Josefine).

The above quote discloses how the EFS had a strong emphasis on affective aspects. According to Fabricatore & López (2012), emotional commitment to sustainability is important to foster the necessary sustainability mindset. This is also important to foster the engagement in sustainability (ibid.). Thus, the facilitators' focus and emphasis on presenting and discussing affective aspects during the SH have been an important part to foster the sustainable development.

## 5.3 Game-based Learning in Scandic's Sustainability Hackathon

Scandic's facilitators also have different perspectives on the complexity of the elements of the SH. There are similar characteristics between hackathons and games, as they both build on the collective construction to discover, tackle and develop. The facilitators received a PowerPoint which included a manuscript providing them with essential information on what to educate during the SH, instructions for creating a successful brainstorming session, and tips on essential items to bring to the SH. However, it was still the facilitator's own perceptions and values who shaped the SH. Two examples are provided below which illustrates two different perspectives on this. For instance, Josefine states that:

> Brainstorming can be complicated for some people and groups, and others might require more time or more preparation before a brainstorming session /…/ And it can be difficult to go from an educational setting to a brainstorming setting, as the brain has to transform into that mode. And in some cases, this takes more time for some than for others (Josefine).

Josefine discusses the complexity of brainstorming and the complexity in switching to different modes during the SH. By understanding that some employees might need additional time in this stage, it increases the chances of delivering a successful EFS. However, another perception is further stated by Bertil:

> Well, the idea was that it would not take so much time [the EFS], but that the brainstorming was the primary focus where it also would be discussions. So, the educational part was compressed as much as possible. However, it was not that much of an education anyway, but rather a description of the task. So, it was not much education or knowledge (Bertil).

Bertil believes that, by compressing the formal educational part, more time could be used for brainstorming. However, it can be difficult to generate ideas in sustainability without having the essential knowledge for it. Sustainability hackathons contain a similar structure to games, where it is essential for the players to learn about the elements of the game system, e.g. necessary rules, information and goals (Fabricatore & López, 2012). Understanding this is important for developing the necessary individual and social skills to succeed (ibid.). Thus, some employees with lower levels of knowledge in sustainability, might have experienced complications in the brainstorming part of the SH. In addition, the fussy phenomenon of sustainability makes the hackathon itself an already complex event (Salas-Zapata et al., 2018; Sipos et al., 2008). The implications of this is difficult to analyse, however, not ensuring all the

employees' the necessary level of knowledge on sustainability could have impacted the outcome of the SH.

What encouraged the facilitator to compress the educational material and spending more time on generating ideas, could be due to the fact of the SH designed as a competition. The SH was designed as a competition to encourage the hotels to participate. However, the employees at the hotels also cooperated in the development of innovating ideas. The competition thus had a characteristic of "co-competition", which has been identified as an effective mechanism of learning, by encouraging participants to more strongly help each other in a competition (Zapico, Pargman, Ebner, & Eriksson, 2013). Thus, it is not the element of competition itself that is the main driver for participation in a SH, but the creative process of developing ideas with other employees and contributing to the greater good (ibid.).

Nevertheless, the SH being presented as a competition could have impacted the facilitators to decrease the educational part, to more focus on the brainstorming session. This is contradictive to the concept of EFS and can thus have impacted the employees understanding of sustainability. Though, the facilitator might have felt stressed as the SH only was meant to be conducted for one hour. Normally, hackathons run for extended periods between 24-48 hours without pauses (Zapico et al., 2013). However, hackathons are characterised by many different shapes and sizes (ibid.). As stated previously, Scandic's 2018 Sustainability Hackathon was designed to be conducted in one hour, to mitigate the risks of clashing with day-to-day operations.

In addition, all the facilitators stated how they wanted all their employees to participate in the SH. However, some facilitators experienced more challenges related to this, than others. For instance, Nicole managed to execute the SH twice during two different days to enable as many employees as possible to participate, as she personally assumed it was important that everyone participated. In contrast, Daniella faced more issues with executing the SH during a hectic period at the hotel:

> And during that time being able to look up and gather all the employees, in a way we would like and really have ambition to, have not been possible. We have not had the capacity to fully contribute in the way we could (Daniella).

Daniella explain how Downtown Camper was in the middle of their maturation phase when the SH was executed. During this time, both renovations and reorganisations was heavily affecting

the organisation which limited their capacity to fully contribute in the way they potentially could during the SH. However, they still managed to participate in the SH, but did so by having one person at each department being responsible for collecting and presenting their department's ideas, i.e. a small project group was created. Thus, this ensured most of the employees having the possibility to contribute with ideas in the SH, but most did not experience the formal educational part of the SH, which contains knowledge on sustainability. Fabricatore & López (2012) explain that participants who not understand the basic concept of the game, also will lack the motivation to proceed. Thus, the employees who not experienced the formal education might feel less motivated to continue to engage in sustainability after the SH. This as, the importance of games is that the participants feel motivated enough to play the sustainability games outside formal educational settings (ibid.). An example of how the SH could be used outside the educational setting is provided by Theodora:

> We should do hacks like this all the time. It does not have to come from Scandic Headquarter. But to bring out the best option for how we should do things and to engage more people (Theodora).

Theodora state how the SH identified the power of utilising hacks as a means of developing best practices and options. This illustrates the importance of the SH being both entertaining and easy to understand, to ensure the employees' motivation to hack for new sustainability ideas and engage in sustainability related matters even after the SH. Thus, by creating commitment through the intrinsic connection of fun and learning, the employees can eventually obtain a broader understanding of sustainability (ibid.), which is imperative to reach the SDGs (Annan-Diab & Molinari, 2017).

## 5.4 Creative Problem-Solving in Scandic's Sustainability Hackathon

Creative problem-solving has been a central part of Scandic's SH. Most of the facilitators saw the bigger picture and emphasised the importance of affecting beyond the SH itself. During the brainstorming the employees had the possibility to address sustainability challenges by innovating solutions to these challenges. These innovations and solutions might be more important than winning the SH, as stated by Josefine:

/…/ all groups brainstormed some really impressive ideas, and that is the most important. And many of these ideas might not the be winner of the competition, but it is still a great idea. And that is important to reflect upon, as it might be more important for the hotel itself, than actually winning the contest (Josefine).

The quote above shows how the facilitators expressed an understanding of the importance of the ideas produced during the SH, rather the winning the contest. Liu et al., (2017) explain how creative problem-solving may affect the participants through a transformative learning related process, thus affecting them to be creative in- and outside the "classroom". Thus, by seeing the bigger picture and valuing these ideas, the employees which participated in the SH might have the possibility to engage and being creative outside the SH in the future. Similarly, Daniella express how some ideas from the SH that did not win the contest, still were integrated directly at the hotel:

Some of the ideas were forwarded to the housekeeping and real estate management team, as these ideas could be integrated directly, and which we did /…/ We have also developed a fun thing from one of the ideas that was stated during the sustainability hackathon - 'we know that you know how to wash your hair, while you are here you have three minutes' and then the guests turn the hourglass and wash their hair. And the guests take on this challenge, and both writes and talks about it. So, that becomes something fun out of it and that is one of the things we have developed from the ideas (Daniella).

This provides an example of how the SH resulted in new sustainability innovations at the hotel. The hospitality industry needs to integrate social and environmental issues into corporate strategies and operations (UNWTO, n.d.-b), which was the case of the SH. However, the interesting part of the innovation on challenging the guests to wash their hair within a specific time-frame, is that both guests and employees were engaged. According to Cherapanukorn & Focken (2014), the hospitality industry need to be responsible towards all their stakeholders, being employees, customers and the broader society. In this case, the employees innovated the idea, while the customers decided to participate and talk about the idea. It is important that the employees are contributing to sustainability innovations, as all segments of businesses needs to be engaged in sustainability to successfully reach the SDGs (Annan-Diab & Molinari, 2017). Hotel's that deliver social, economic, and environmental benefits are contributing to the sustainable development and may thus be considered as a sustainable hotel (Baumgartner & Winter, 2014). Thus, it can be argued that the SH contributed in the development of Scandic becoming a more sustainable hotel chain.

Another interesting theme identified, was how the facilitators demonstrated both cognitive and affective support throughout the creative problem-solving process. In the quotes below, two examples are provided on cognitive and affective support throughout the SH:

> It's easy to get stuck in thinking that you can't influence anything – 'it doesn't matter if we try to do this'. But I tried to illustrate that we have 280 hotels, so multiply everything with 280 and think about that effect. But it's very difficult when you sit in your hotel, to think outside of it. And if you take a big hotel, the impacts are even greater (Theodora).

> We sat in a conference room at a giant table where I had put papers, college blocks, newspaper, scissors and pens. So that one could cut, write and draw etc. Some employees in the hotel may not feel comfortable in writing, and some may not write so well in Swedish. So, I wanted show everyone that they could use whatever suited them. It was important to get everyone comfortable so that everyone could participate and contribute /…/ And that the employees feel safe at work. If you don't feel safe, then it is not possible to relax and contributing with new ideas (Theodora).

The first quote emphasise how the facilitator focused on supporting the employees by illustrating the power of scale (i.e., 280 hotels), which is considered a cognitive aspect. Facilitating knowledge on sustainability and creative problem-solving by e.g. emphasising the power of scale, can have a strong impact on employees and eventually have them thinking similar in other contexts (Liu et al., 2017). The key is to go beyond one's own field of specialisation and rather focusing on a holistic and long-term systems approach, based on values of equality, justice, solidarity and ethics (Pappas et al., 2013).

However, the second quote is rather an example of how affective support characterised the creative problem-solving. The facilitator emphasised the importance of having the employees feeling comfortable and safe, which can have positive impacts on interdisciplinary collaboration and information sharing – the two essential factors of hackathons (Zapico et al., 2013). It is imperative that education for sustainability focus on more than just knowledge, including focus on behaviour and values (Pappas et al., 2013). This is also why participants are encouraged to work in groups as more competencies often resulting in better teams, ideas and results (Zapico et al., 2013). Consequently, this can impact the employees' mindset with a more holistic appreciation of sustainability when engaged in other projects (Pappas et al., 2013). Thus, the affective support from the SH can eventually impact the employees to innovate more radical sustainability solutions (Kajzer Mitchell & Walinga, 2017).

## 5.5 The Sustainability Hackathon's Cognitive Impacts on the Employees

The previous sections in the analysis have focused on analysing the execution of Scandic's Sustainabiltiy Hackathon. Moreover, this have been done by examining the following aspects that were identified in Scandic's SH, being: education for sustainability, sustainability, game-based learning and creative problem-solving. However, the aim of this study was to explore and critically analyse how the hospitality industry execute sustainability hackathons and its impacts on employees. It is thus time to focus on the SH's impacts on Scandic's employees. To facilitate reading, the impacts will be divided in cognitive, affective and psychomotor impacts and analysed over three different sections. Analysing these impacts are important to fully understand the sustainability education, through the reflections of the learning outputs from the sustainability hackathon (Liu et al., 2017).

The cognitive domain encompasses learning skills mainly related to mental thinking processes and deals with the recognition of knowledge and the development of intellectual skills and abilities (Bloom et al., 1956; Hoque, 2017; Salas-Zapata et al., 2018). The mental thinking processes include "processing information, constructing understanding, applying knowledge, solving problems and conducting research" (Hoque, 2017, p. 46). The author identified two themes related to cognitive impacts of Scandic's sustainability hackathon on Scandic's employees. These themes were 1) the employees were impacted with a broader understanding of sustainability, 2) the employees were reminded of the importance of sustainability through the SH.

First, some of the employees were clearly impacted with a broader understanding of sustainability from the SH. In particular, aspects of social sustainability were identified across the interviews, as stated in the examples below:

> /…/ previously when I was thinking on sustainability, I was only thinking on environmental questions, and did not understand that it was so much more than that /…/ I was not thinking on security and such things, but that is of course sustainability too. Sustainability is really broad. So, I obtained a greater insight on this (Nelly).

> /…/ I am quite young and do not have a good understanding of this whatsoever, so for me it was very important /---/ Specifically, I do remember getting new perspectives on social sustainability. Much about anti-trafficking, which was interesting (Tilda).

Nelly and Tilda explain how the SH provided them with greater insight on what sustainability is and elucidates how they received new knowledge on social sustainability. Pappas et al., (2013) claim that social sustainability is the central factor of sustainability, as the nature of human relations are essential in the development of both environmental and economic sustainability. Social sustainability thus has a strong impact in all sustainability efforts, including economic and environmental sustainability (ibid.). Due to this, the SH's impacts on broadening the employees' perception of sustainability was important from not only a social sustainability perspective, but an economic and environmental perspective, due to its interconnectedness.

In addition, Westerman, Westerman, & Whitaker (2016) explain the importance of how education for sustainability should be a balanced consideration of environmental, economic, and social factors, to foster the necessary values, commitment and knowledge. The SH's impacts on the employees in terms of broadening their perception of sustainability, can thus be important to foster the employees' necessary values, commitment and knowledge. For instance, in this case, the necessary values and knowledge can contribute in reaching Scandic's sustainability goals related to social sustainability, e.g. "Diversity and Inclusion" and "Health" (Scandic's Annual Report, 2017). From a more holistic perspective, it can also assist in reaching the SDGs related to social sustainability, specifically, the SDGs Gender Equality, Good Health & Well-Being, Decent Work and Economic Growth, Reduced Inequalities.

Second, the SH facilitated a great reminder for sustainability. A majority of the employees across the interviews demonstrated how the SH worked as a platform for highlighting the importance of sustainability. For instance, some quotes on this are presented below:

> The most important part of the sustainability hackathon was that it provided a great reminder of sustainability (Tanja).

> /…/ the sustainability hackathon was a good reminder. This is how we are going to do it and work with sustainability (Tilda).

> It is always good with repetition and besides, not everyone might be on the same level. It is good to illuminate what needs to be done (Ben).

As hotels can be quite busy focusing on day-to-day operations, it can be difficult to highlight something which is beyond the daily operations. However, according to the empirical data, the

SH was successful in highlighting the importance of sustainability in the middle of day-to-day operations at the hotel. According to Horng et al., (2018), an environmental committee could oversee the hotel's environmental policy and promote knowledge regarding sustainability. This is similar to how the SH was facilitated at Scandic, where the General Managers promoted the SH with help from the sustainability department, and thus promoted knowledge on sustainability.

An interesting finding related to this "reminder", is how approximately half of the employees interviewed stated how the SH not provided any significant news on sustainability, due to their already existing knowledge and interest in sustainability. However, they still argued that they learned other things from the SH:

> For me it was not any revolutionary news that was presented. But then there were some things presented that I was not aware of, for instance that Scandic innovated the 'towel idea'. So, it did teach me well what Scandic has accomplished in sustainability long before I started here (Niklas).

Thus, this "reminder" of sustainability was characterised by the employees as somewhat basic, however, it still provided the employees knowledge on what Scandic has accomplished in sustainability. Highlighting an important aspect such as the employer's efforts in sustainability, can impact the profitability of the hotel. For instance, as stated by Wang (2014), a firm's ethical, legal, economic and discretionary responsibilities to the wider society is especially important to the hospitality industry, as it depends on all the employees in the organisation, and thus is directly linked to profitability of the hotels. In addition, this can strengthen corporate public relations and attract more loyal customers (ibid.). As the SH promoted knowledge on sustainability to the employees, its impacts on the employees can be linked to the profitability of the hotel. For instance, it is much easier for a receptionist to discuss Scandic's efforts in sustainability with a guest, if the receptionist has a greater insight and knowledge on Scandic's standpoints and values in sustainability.


## 5.6 The Sustainability Hackathon's Affective Impacts on the Employees

Learning is more than just the mental processes in the brain, which is why it is necessary to understand the SH's impacts on the affective domain, which focuses on changes in interest,

values, attitudes and the development of appreciations (Bloom et al., 1956). In addition, the affective domain also relates to how we connect with a context emotionally, more specific our motivations, emotions, feelings and enthusiasm (Hoque, 2017; Salas-Zapata et al., 2018). The author identified three themes related to how the SH affected the employees' affective domain. These three themes were, 1) the SH increased employer value, 2) the importance of getting the employee's voice heard, 3) the employees continued to hack for sustainability after the SH was finished, and 4) the impacts on employees were affected by the strong sustainability culture and leadership of Scandic.

The first theme identified how the SH impacted the employees with increased employer value. For instance, a few quotes emphasising this is presented below:

> It demonstrates that they do care about sustainability and that they engage in it. And by showing that means a lot to me. Because it's organisations like that I want to work for. Organisations which seek to develop and make the world slightly better, step by step. And really getting everyone involved (Tilda).

> Everyone says that the work in sustainability is so important, but Scandic actually do something about it, for real. So, I think so. I believe that I think on it more at work now, than I did before the Sustainability Hackathon. It has affected me (Julia).

> Before I applied for the job at Scandic, I already knew that they were environmentally friendly and focused much on the environment. But there are many organisations that says this, however, Scandic is really enthusiastic to make change all the time, and that is great to see (Nelly).

As the above quotes' illuminates, the employees received increased knowledge on how Scandic work with sustainability, which eventually impacted their perception of Scandic as an employer. Thus, the SH impacted the employees with increased employer value. These stronger values and appreciations towards the employer is characterised by affective aspects (Bloom et al., 1956; Hoque, 2017). Moreover, this is interesting as it elucidates how the impact is not one-way on the employee, but Scandic also gets rewarded with increased loyalty when they promote their environmental values and standpoints in sustainability. In addition, as expressed by Nelly in the above quote, increased insights and knowledge on how Scandic work with sustainability can decrease the employee's perception of green washing. Cherapanukorn & Focken (2014) explain how an organisation's motivation for emphasising sustainability issues in corporations

sometimes is more related towards sustaining the basis for their operations, rather than due to the organisation's values. Thus, the SH's impact on the employees' affective domain can be important for developing a clearer insight in the employer's actions in sustainability.

The second theme identified the importance of getting the employee's voice heard. A majority of the employees across the interviews explained how it was important for them to participate in the SH. Some of the employees explained the importance of participating in the SH and being able to influence Scandic's future in sustainability, as stated below:

> It was important to be part of the sustainability hackathon /…/ It does not matter who won the hackathon, it was just fun to participate. And I especially appreciate how the employees were encouraged to influence Scandic's work in sustainability (Tanja).

> It feels great to be a part of it and being able to make a difference. And that they listen to our ideas /---/ And that is how I find my motivation. It is not fun going to work if you do not feel that you are part of something greater and feel that you can contribute (Nelly).

Both these quotes exemplify the importance of having the possibility to influence at work, which characterises affective aspects through the development of appreciations (Bloom et al., 1956; Hoque, 2017). However, not all the employees related the importance of getting their voice heard, with being able to influence the future of Scandic's sustainabiltiy work. Rather, the SH was also described as an important platform which facilitated the right space for discussing sustainability:

> /…/ to get a place to ventilate. I think I sometimes can be this "angry vegan", which I know is the wrong method for converting people. So, it was great to sit there and just say whatever I wanted /…/ And it was not "out of place", as it is when someone is sitting with a piece of meat in front of you, and you ask them if they thought about how much carbon dioxide they emit by eating it (Diana).

Diana expressed how the SH facilitated a forum for her to ventilate her thoughts on sustainability, which is a sign of development of appreciations in affective aspects (Bloom et al., 1956; Hoque, 2017). However, in comparison to Tanja and Nelly which emphasised the importance of having the power to influence at work, Diana rather valued the aspects of discussing sustainability in a forum where it was more feasible. However, all these examples still provide the employee with increased motivation, depending on their personal values (Bloom et al., 1956; Hoque, 2017). Increasing the employees' emotional work commitment is

important as it can improve work processes, especially in ethical and sustainable practices (Wang, 2014). Employees with high affective attachment to the organisation, tend to feel more committed to the organisation and making more efforts at work (ibid.) Thus, despite Scandic's SH's focus on fostering new innovative ideas in sustainability, it could also improve work processes as a result of increased work commitment.

The third theme identified how the SH impacted the employees to innovate for new sustainability ideas after the SH was finished. A majority of all employees interviewed explained how the SH provided a "wake up call" and how they were impacted with a stronger attitude towards sustainability and a stronger motivation to innovate and implement new ideas in sustainability even after the SH was finished. For instance, Niklas and Nelly describe how strongly the SH affected them and other employees at the hotel:

> Especially the first month after the SH, I was still trying to figure out new ideas in sustainability that could be implemented or inventing something that would have positive effects. So, it was an eye-opener for sure. And I remember I heard other employees discussing sustainability innovations and heard phrases such as 'we should have written this idea during the Sustainability Hackathon' (Niklas).

> I still seek to innovate the new 'towel idea' (Nelly).

An especially interesting aspect from these quotes, is how Nelly stated how she still is motivated to figure out new ideas in sustainability and refers to one of the most famous sustainability ideas ever invented at Scandic. The interesting aspect of this is that the author collected the data approximately half a year after the SH was conducted, which illuminates the impacts the SH had on some of the employees to a high extent, and demonstrates high levels of affective aspects (Bloom et al., 1956; Hoque, 2017). Thus, the knowledge and feelings obtained at the SH was important for continuing the quest of innovating new sustainability ideas. OECD (2013) explain how creating and applying knowledge empowers hospitality employees to innovate, which have been identified as a useful tool in addressing sustainability challenges. In addition, more knowledge, feelings and education on sustainability are necessary to foster new innovative green ideas, which is considered key to success and crucial for the green hotel concept (Horng et al., 2018).

Consequently, this illustrates how the hospitality industry can provide EFS to their employees, and eventually having the possibility of being rewarding with new innovative sustainable solutions, which is crucial for the green hotel concept. It also exemplifies how Scandic's SH was not a one-day event, but still impacts some of Scandic's employees to a high extent. This is also important for the continuing fostering of sustainability in the hospitality industry (Horng et al., 2018; Salas-Zapata et al., 2018). Finally, the empirical data presented here demonstrates how the SH had successful characteristics of game-based learning (Fabricatore & López, 2012) and creative problem-solving (Liu et al., 2017), as the employees strived to innovate and find new sustainability ideas outside the "SH-setting".

The fourth theme identified how the impacts on employees were affected by the strong sustainability culture and leadership of Scandic. The employees demonstrated how the managers motivated them and even educated them on sustainability. The leadership and leaders of Scandic thus played an essential part of how the SH impacted the employees, as presented in the quotes below:

> We have had the advantage of having such as enthusiastic General Manager which have inspired us. We probably would have forgotten more of the sustainability hackathon if it was not for her, as she has educated us on sustainability along the way (Julia).

> /…/ and our General Manager is very enthusiastic and encourages us to focus on sustainability. And the restaurant manager, she cares a lot for humans and social sustainability. So, there are many people around me which are enthusiastic and focus on sustainability (Niklas).

As illustrated in the quotes, the leaders of Scandic impacted how the SH was not only executed during the day, but also how it shaped the development afterwards. The leadership demonstrated by the leaders of Scandic thus assisted in changing the attitudes, values and interest in sustainability of the employees (Bloom et al., 1956; Hoque, 2017). Thus, the managers of Scandic affected the employees and can thus be seen as agents of change, as they affected the employees developing from more basic to more complex levels of the affective domain (Bloom et al., 1956; Hoque, 2017). Due to Scandic's strong environmental leadership, employees can be influenced to contribute in sustainability related issues and innovations (Chen, Chang, & Wu, 2012). Furthermore, two more examples are provided which both illustrates Scandic's leadership and culture in sustainability:

She [the General Manager] is a role model when it comes to this. In general, I think all the department managers are very enthusiastic in sustainability. And it is important being able to look up to someone and who wants to hear our opinions on sustainability (Nelly).

/…/ if not Scandic was so encouraging, I would not have invested my time and resources focusing on these questions. Because there is still a cost related to all these efforts (Niklas).

Both the leadership and culture of Scandic has thus affected how the SH impacted the employees. The two quotes clearly emphasise the connection between leadership, culture and efforts in sustainability. This as environmental culture have the power to affect the employees' commitment (Chen, Chang, & Wu, 2012). The culture and leadership provided by Scandic can thus foster the employees' commitment, and also affect the employee in innovating new sustainability ideas, which was one of the purposes of the SH. This as environmental culture have the power to affect not only the employees' commitment, but innovation capabilities (Chen, Chang, & Wu, 2012). Consequently, this can support Scandic in developing more new innovations, as environmental leadership and culture are essential to proactively developing green innovations, e.g. new practices or products, decreasing costs, seize opportunities and obtain a competitive advantage (ibid.).

## 5.7 The Sustainability Hackathon's Psychomotor Impacts on the Employees

The psychomotor aspects indicate certain behaviour that is a result of certain cognitive and affective domains (Salas-Zapata et al., 2018). The psychomotor domain relates to the motor-skill and manipulative area, physical and interpretive movements, physical encoding of information, reflex actions, physical functions and movements used to express and interpret information and concepts (Bloom et al., 1956; Hoque, 2017). The author identified two themes related to the psychomotor domain. These themes were, 1) the employees are more actively addressing sustainability issues, 2) sustainability have been more expanded throughout the organisation.

The first theme identified how the employees are more actively addressing sustainability issues. For instance, some of the employees demonstrated how they have started to address the challenges in sustainability by innovating new ideas:

> We have renovated our back office after the sustainability hackathon, due to its bad working environment /…/ And that idea was a result of a few ideas that I got during the sustainability hackathon regarding work environment (Nelly).

> Regarding food waste, we work daily with it and we constantly discuss if we can do anything better. Last week, we made the decision that we will buy a sign and write how much food our guests throw out every week and put it on the breakfast buffet. We have these kinds of dialogues daily (Niklas).

> We always try to find new solutions on making it better. For instance, right now we are changing all the trash bins in the reception. We realised that they were too low as we had bend down to use them, which is bad working environment. So now we got larger ones instead, where you can simply drop the trash (Nelly).

Both Niklas and Nelly explain how they constantly seek to develop and innovate to make their work place more sustainable. One interesting finding relating to this, is how they both make examples related to their specific work tasks. Niklas, engaged in F&B, focuses on mitigating food waste, while Nelly seeks to develop the working environment of the reception in which she works. Having the correct knowledge and attitude may support the innovator to identify the work tasks, however, executing them show signs of the psychomotor domain (Bloom et al., 1956; Hoque, 2017). Furthermore, these innovations can also be a result of a strong environmental culture. Chen et al., (2012) elucidates how environmental culture can facilitate proactive green innovations, which relates to the above quotes from Nelly and Niklas. This is due to how environmental innovations relate to employees' interpretations and sensemaking of the culture (ibid.). Additionally, this can positively affect the green organisational identity and influence green competitive advantage (Chen, 2011), which is thus another aspect of how Scandic is being rewarded through the SH. Eventually, if these innovations result in success, there is a chance of innovating the new "towel idea", and consequently increased emotional work commitment.

The second theme identified how sustainability have been more expanded through the organisation. As stated in the quotes below, this could take different shapes:

I joined the hotel's environmental group after the sustainability hackathon (Nelly).

We have more heavily brought sustainability into work. We have established it much higher up on the agenda when we are about to do or change something. For instance, we were discussing what to do with the floor in our 85 rooms. So, the question was if it was better economically to change all the floor, instead of sanding the floor. And then we thought, what would be most sustainable? And that must be to sand the floor, using what we already have, instead of throwing it out (Julia).

Sustainability has been a recurring important aspect during meetings after the sustainability hackathon. We have more frequently discussed a fully vegetarian day, and these discussions have been started by the employees. Now, the head chef states how he would like to try a fully vegetarian day /…/ So, in that case, the sustainability focus has affected further down in the organisation, which is great (Julia).

The three quotes above elucidates three different psychomotor impacts on how sustainability have expanded through the organisation after the SH. For instance, Nelly stated how she joined the local hotel's sustainability group after the SH. As the SH provided knowledge and feelings, Nelly's action by join the environmental group thus demonstrate action related to the psychomotor domain (Bloom et al., 1956; Hoque, 2017). Thus, as stated by Salas-Zapata et al. (2018) high levels of cognitive and affective aspects results in high level of practises. Additionally, Julia stress how sustainability has received a more central part in projects and a higher status on the agenda and adds how these sustainability actions have started to become more frequently addressed further down in the organisation. Thus, understanding how cognitive, affective and psychomotor aspects are related and impact the employees are important aspects in EFS, and can support the development and design strategies of new sustainability hackathons in the future (Salas-Zapata et al., 2018).

# 6. Discussions & Conclusions

*In this chapter, the study's main findings are discussed. The conclusions are based on the connection between the empirical data and theoretical material. Thereafter, the study's theoretical and practical contributions are presented. Finally, future research is recommended.*

## 6.1 Discussions of main findings

The aim of this study is to explore and critically analyse how the hospitality industry execute sustainability hackathons and its impacts on employees. Based on the empirical data from five different hotels of the Scandic Hotels chain, the author's main findings show how two underlying factors underpinned the execution of Scandic's Sustainability Hackathon. First, the SH was executed in a way to educate and enhance the employees' knowledge on sustainability. This was executed by emphasising the concept of sustainability, as well as Scandic's standpoints, goals and values in relation to sustainability. The delivery of this education emphasised affective aspects with the purpose of affecting the employees emotionally in sustainability, but also increasing motivation through examples of how Scandic works with sustainability.

Second, the facilitators' perspectives, backgrounds and attitudes were essential factors in the execution of the SH. The facilitators' perspectives on the complexity of the elements in the SH, affected to what extent the facilitators adopted aspects of game-based learning and creative problem-solving. Furthermore, the polysemy concept of sustainability impacted the facilitators' delivery of the education for sustainability. Consequently, various aspects of sustainability were educated to the employees in the different hotels. Nevertheless, the facilitators demonstrated a strong attitude towards impacting the employees beyond the SH, encouraging aspects of creative problem-solving after the SH. Finally, the facilitators elucidated a holistic understanding of the SH, by seeing the bigger picture in sustainability and focusing on how the SH could impact the employees beyond the SH itself. These aspects were imperative in the execution of the SH, due to the SHs limited time-frame.

Regarding the SH's impacts on employees, the author's main findings illuminate how three aspects characterised the SH's impacts on employees. First, some of the employees were

impacted with increased knowledge on sustainability, as well as Scandic's values, goals and accomplishments in sustainability. However, the impacts were not one-way on the employees, as the findings demonstrate how Scandic got rewarded with increased loyalty when they promoted their environmental values and standpoints in sustainability. Additionally, this resulted in decreased risks of green washing from the employees' perspective. Second, one of the strongest impacts were related to the voice of the employees, as the feeling of participating resulted increased motivation and work commitment. Moreover, this was also imperative for fostering interdisciplinary collaboration and information sharing. Third, the hotel's providing the strongest sustainability culture and leadership also identified the greatest impacts on their employees, i.e. increased work motivation and enhanced employer value. Similar, where the hotel's sustainability culture and leadership were not as strong, the impacts were not as clear. However, the leaders played an important role as they basically kept the spirit of the SH alive long after it was finished and are thus the agents of change. The SH managed to affect the employees beyond the duration of the SH and these employees were still encouraged to innovate new ideas in sustainability, thus going beyond the competition itself.

Consequently, based on the experiences from five case studies at Scandic Hotels, the author conclude that Sustainability Hackathons can be a useful tool for creating arenas where expertise from certain departments of the hotel can interact with other professionals to address sustainability challenges. Thus, sustainability hackathons can foster knowledge on sustainability. This is also in line with UNESCO's priority action area number two on education for sustainable development: "Transforming learning and training environments: Integrate sustainability principles into education and training settings" (UNESCO, 2014, p. 14). However, different approaches to the education for sustainability inevitably affects the outcome of knowledge in regards of sustainability. Additionally, it makes it easier for the employees to present new ideas in sustainability, when Scandic as an organisation is highlighting its standpoint in sustainability through a SH. Thus, training employees into developing sustainability-related competencies are one of the most important aspects regarding any sustainability-related corporate initiative (Ahmad et al., 2012). Thus, this can foster sustainability through the use hackathons in the hospitality industry, which can be an important finding for reaching both Scandic's Sustainability Goals, and more important, the Sustainable Development Goals.

## 6.2 Theoretical and Practical Contributions

This research contributes by filling a theoretical research gap on sustainability hackathons in the hospitality industry and its impacts on employees. For instance, Deale & Barber (2012) expressed the necessity for more research on the educational process of how the hospitality industry can foster sustainability to their employees. Moreover, the main inhibitors for the hospitality industry to take more responsibility in sustainability, are lack of understanding and lack of resources (Sheldon & Park, 2011). Thus, more research was needed which could facilitate understanding for how the hospitality industry can foster sustainability to their employees. The theoretical contributions of this research have provided insights into how to organisations can foster sustainability through sustainability hackathons, by analysing how sustainability hackathons are executed in the hospitality industry, and what underlying factors that underpinned this execution.

Moreover, research on knowledge, attitudes and practices in relation to sustainability is scarce, and there is a need of more studies which examine sustainability in relation to the three domains of learning, being cognitive, affective and psychomotor aspects (Salas-Zapata, Ríos-Osorio, & Cardona-Arias, 2018). This study can thus be used by other researchers which seek to receive a greater understanding of how sustainability hackathons are delivered in the hospitality industry, and how this impact the employees cognitive, affective and psychomotor domains. The heterogeneity and polysemy concept of sustainability may have its origin in the complexity of the phenomenon sustainability itself, which also makes the development towards sustainability more complex (Salas-Zapata et al., 2018). In addition, Sheldon & Park (2011) express the lack of research available on corporate responsibility in the hospitality industry and states the need for a clear conceptualisation and directions for engagement in this. This research can thus contribute by assisting in setting a more theoretical standard on how education for sustainability can be executed in the hospitality industry.

The practical contributions of this research can provide increased knowledge for not only the hospitality industry, but other businesses in other industries, which seeks to develop how they foster sustainability in their organisation. More importantly, this research clarifies how sustainability hackathons are executed, and the underlying factors that underpinned. The cognitive, affective and psychomotor impacts on employees demonstrated in this study, can be an imperative aspect why other industries would seek to foster sustainability education through

a sustainability hackathon in their organisation. This, as this study has demonstrated how the employer were rewarded with increased employee loyalty. In addition, as the employees demonstrated how they brought the learning from work with them home, the learnings in sustainability can be an imperative part to reach a more sustainable world. However, due to the polysemy concept of sustainability, a clearer conceptualisation of sustainability is recommended to be established in future sustainability hackathons. Moreover, it is imperative to for sustainability hackathons to emphasise the part of EFS, to ensure employees' development in sustainability. This can also provide a smoother transfer between the EFS and the brainstorming session. Finally, this research can be used by Scandic Hotels to evaluate their sustainability hackathons and methods for fostering sustainability, in relation to the impacts on employees.

## 6.3 Future Research

Despite how this study demonstrates valuable insights of sustainability hackathons in the hospitality industry, there are still certain aspects that are of interest to explore further. For instance, as a case study was conducted, it contributes with comprehensive knowledge to the certain research field, i.e. sustainability hackathons in the hospitality industry, which encourages future research to be conducted within that specific field (Merriam, 1994). Thus, it would be interesting to conduct a similar study but with other hotels from the Scandic chain. For instance, hotels from another operating country could be of interest, as both leadership and culture affected both the execution of the SH and its effects on employees. As culture and leadership differ from country to country, this could be a feasible alternative. In addition, now when the underlying factor that underpinned the execution of the sustainability hackathons has been identified, as well as the central impacts on employees, it could be of interest to conduct a quantitative study which focused on these factors. Specifically, it could focus on correlations between the execution and the impacts of the SH. Finally, as research on EFS mainly was related to changing the curriculum of universities, the author recommends further research to focus on EFS in the hospitality industry.

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# 8. Appendix

## 8.1 Appendix A: Interview Guides

These interview guides were used for the 15 semi structured interviews with managers and employees from five different hotels of the Scandic Hotels chain. All interviews started with a presentation of author and asking for consent to record the interview. General information about purpose of the study and how the material would be handled was also discussed before each interview. Follow-up questions were used whenever suitable.

SH = Sustainability Hackathon

Three different interview guides were conducted, to ask relevant questions for:
1) Sustainability Director of Scandic Hotels (who organised the SH),
2) The facilitator of the SH (often the GM of the hotel),
3) The employees who experienced the SH

### 1) Questions for the Sustainability Director

**Introduction Phase**

- How long have you worked at Scandic Hotels and what is your position?
- Have you held other positions at Scandic Hotels? If yes, what position?
- Have you worked in a similar industry previously?
- Have you received training / education on sustainability previously?

**Main Phase**

- What was the purpose of the SH?
- What was the purpose of the EFS provided during the SH?
- How should the SH be executed in the hotels?
- What were the challenges in organising a SH?
- What aspects were important to be emphasised during the SH?

**Ending Phase**

- Do you know anyone else that might be of interest to interview regarding this?
- Anything that you would like to add, or any questions?
- Would like to withdraw anything that you have said, or can I use this material in my thesis?
- Thank him/her and ask if I can contact them again if I have any questions.

## 2) Questions for the facilitator of the SH

### Introduction Phase

- How long have you worked at Scandic Hotels and what is your position?
- Have you held other positions at Scandic Hotels? If yes, what position?
- Have you worked in a similar industry previously?
- Have you received training / education on sustainability previously?

### Main Phase

- How was the SH delivered at this hotel? Please explain the process step by step.
- What purpose did you have with the SH at your hotel?
- How was the sustainability education delivered during the SH?
- Did you use any tools to facilitate understanding? E.g. mind maps or similar.
- How did you feel about the way the SH was delivered? Why do you feel this way?
- What are your thoughts on the way the sustainability education was delivered during the SH?
- What do you feel was the most interesting part of the sustainability education during the SH?
- How did you feel about the level of engagement during the SH? Did this change throughout the hackathon?
- Where there any challenges in the way the SH was delivered? If yes, what kind of challenges?
- What do you think would have made the SH more successful, from an educational perspective?
- What do you think are the outcome of the SH on employees?

*Prompts*

- How much time was spent on the SH? How much time was spent on EFS? Was this enough time?
- How many employees participated in the SH, out of the total?
- Did employees discuss sustainability or was it rather one person teaching from the PP?
- What did you discuss on sustainability, and how was the discussions going?

### Ending Phase

- Do you know anyone else that might be of interest to interview regarding this?
- Anything that you would like to add, or any questions?
- Would like to withdraw anything that you have said, or can I use this material in my thesis?

- Thank him/her and ask if I can contact them again if I have any questions.

## 3) Questions for the employees who experienced the SH

**Introduction Phase**
- How long have you worked at Scandic Hotels and what is your position?
- Have you held other positions at Scandic Hotels? If yes, what position?
- Have you worked in a similar industry previously?
- Have you received training / education on sustainability previously?

**Main Phase**

*Cognitive aspects*
- Describe what sustainability is to you.
- Give an example of a challenge related to sustainability.
- How did the SH affect your understanding of sustainability?
- How important was the educational part of the SH for you?
- Do you have an example of how you were thinking on sustainability before the SH, and after the SH?

*Affective aspects*
- How did you feel about participating in the SH?
- How important is sustainability to you? (on a scale 1-10)
- How do you feel about sustainability at work and outside work?
- Would you say the SH have affected your attitude towards sustainability? If yes, how?
- Would you consider yourself more committed and internally motivated to make changes for a better world? If yes, how?

*Psychomotor aspects*
- Do you have an example of where you have been able to apply the knowledge gained from the SH to your work context? (concrete/abstract work tasks)
- Have you identified other areas in your work tasks where you could make a positive impact on sustainability?
- What opportunities do you see in trying to implement these ideas at Scandic?
- What challenges do you see in trying to implement these ideas at Scandic?
- Have you actively tried to learn more about sustainability after the SH?

*Prompts*
- What was the most interesting aspect of the SH? Why?
- Have the SH affected the way you value Scandic's efforts in sustainability?
- Have the SH affected the way you value Scandic as an employer?
- How do you think the SH could have been executed to affect you more strongly?

**Ending Phase**

- Do you know anyone else that might be of interest to interview regarding this?
- Anything that you would like to add, or any questions?

- Would like to withdraw anything that you have said, or can I use this material in my thesis?
- Thank him/her and ask if I can contact them again if I have any questions.