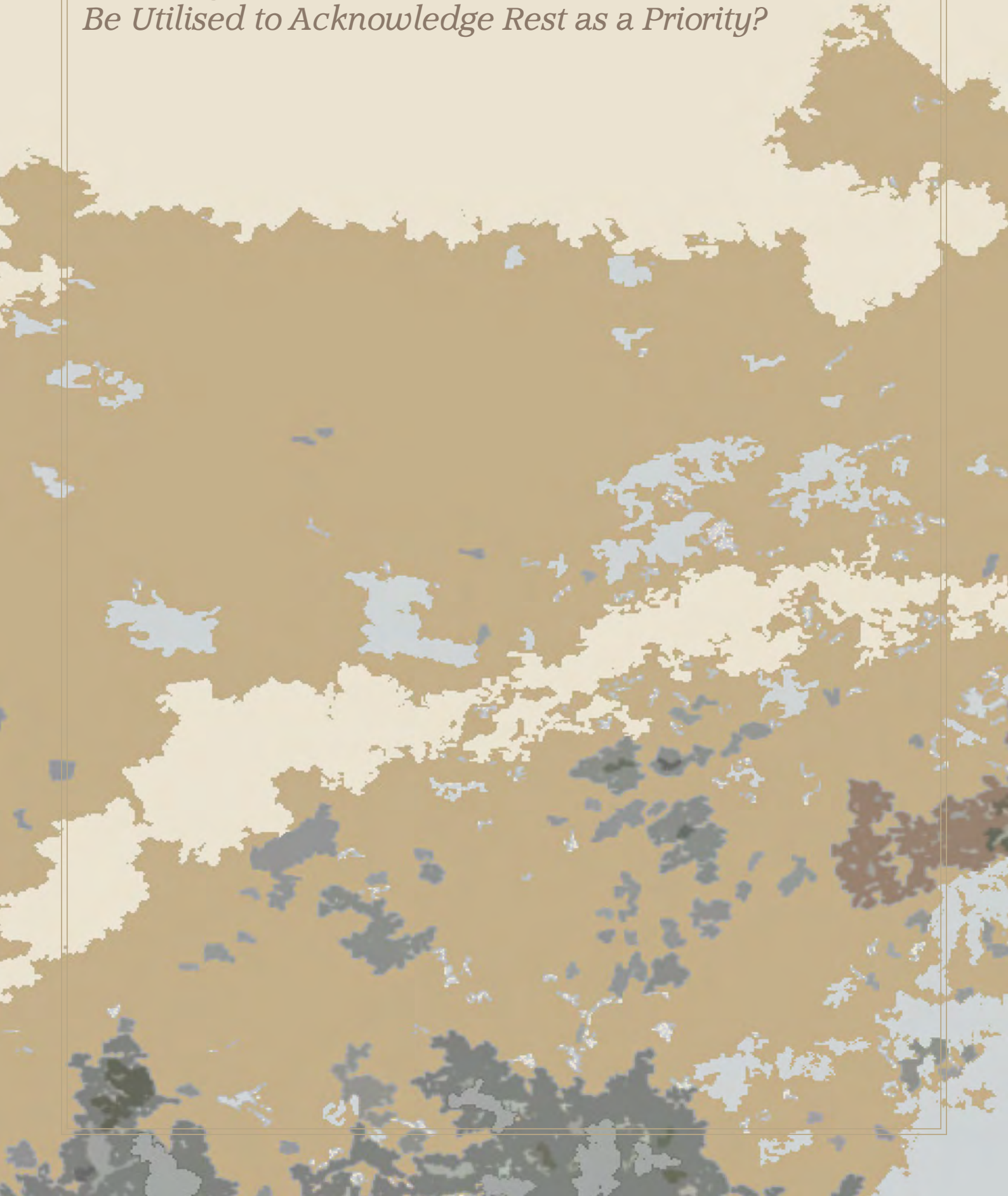# DESIGN RESEARCH PORTFOLIO

JENNIFER MACDONALD I 40342865 I INTERIOR AND SPATIAL DESIGN

Rest as Restoration: To What Extent Can Spatial Design Encourage Restoration and How Can This Relationship Be Utilised to Acknowledge Rest as a Priority?

Acknowledgements

I would like to thank my lecturer and research supervisor Dr Paul Thomson for his continued support and guidance throughout this process.

I would also like to express my gratitude to all who participated in my primary research, their willingness to fully commit to each research task has improved the success of this study.

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ABSTRACT

This research examines the role that spatial design plays in encouraging the modern working society to prioritise rest. The purpose of this research paper was to identify how rest can be prioritised and how spatial design can encourage restoration. This research was identified to be important to undertake because of the current overlap between working lives and personal lives, particularly as many people now work from home.

Primary research methods had a qualitative approach, using the methods of a cultural probe kit, photo elicitation survey and co-design workshop. These methods were used in order to build on the existing knowledge surrounding the role of rest in everyday life, and through considering existing spatial designs which encourage rest. The key research findings were in relation to overwork and it's role in preventing rest; as well as the power of Kaplan's Attention Restoration Theory in the context of spatial design; the features of spaces which have the most powerful restorative outcomes; the power of understanding and implementing the seven types of rest; and the steps which should be taken in order to achieve a healthy relationship with rest. These findings mean that, going forward, designers can create spaces with the sole purpose of restoration, and those who are suffering from overwork can identify the lifestyle changes they should make in order to prioritise rest. These findings will allow a restorative space to be designed with the purpose of encouraging guest to achieve the seven types of rest.

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INTRODUCTION

At a time when working lives are becoming increasingly intertwined with personal lives (Morgan, 2021), it is important to begin to understand and prioritise rest. This Design Research Portfolio will investigate how spatial design can encourage a healthy relationship with rest - one in which rest is viewed as a priority. This will be achieved by understanding how rest is experienced in everyday life. This study will review the principles of design which encourage rest, in order to support the design of a retreat which encourages guests to engage in the seven types of rest, as defined by Dr Saundra Dalton Smith (2021). These are as follows: physical, mental, sensory, creative, spiritual, emotional, and social rest. Retreats are one of the primary examples of spaces currently designed with rest in mind, and they have a rich, restorative history within religious and spiritual communities. By investigating the features of retreats and how these have evolved throughout history, this study will allow an understanding of how design serves as a tool to encourage rest. Numerous primary research methods will also be used to supplement the findings from existing literature.

Throughout this study, "retreat" is defined as a limited period of isolation during which an individual withdraws from their regular routine (Lozano, 2018). The study will also mention "retreats" when referring to traditional retreats, those being specific locations designed for the purpose of retreat and rehabilitation.

Furthermore, "rest" is defined as a refreshing period of inactivity or time spent focusing on one's self (Collins English Dictionary, 2021). This research paper will have a particular focus on "rest" which satisfies all seven types of rest (Dalton-Smith, 2021).

The purpose of this research is to identify how design can initiate "restoration", defined in environmental psychology as the process of renewing or recovering resources which have been drained in meeting the demands of the everyday (Hartig, 2004).

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DESIGN CONTEXTUALISATION

Introduction

This Design Contextualisation aims to provide an understanding of why rest should be prioritised, informing the design of a retreat with this goal in mind. This will be achieved by reviewing experiences of rest, both in the past and in the context of current working lives, with consideration to working practices and the influence of the COVID-19 pandemic. There will be an overview of the psychology of rest, looking in particular at Attention Restoration Theory and the seven types of rest. Following this, the study will consider where society retreats to, looking at the origins of traditional retreats and how these have evolved and expanded outside of the religious community, as well as considering how retreat can be viewed as a practice which manifests itself in the everyday. Finally, this research paper will consider how design currently impacts opportunities for restoration, firstly by looking at existing designs which encourage a healthy relationship with rest, including the current spatial design of retreats. These will then be compared with spaces which actively design against rest, dictating productivity instead. This will provide an understanding of the dichotomy between these designs, considering whether there can be any overlap between productive and restful spaces, in order to understand how restoration can be achieved in the modern working world.

Why We Rest

Historic Relationship with Rest

Early documentation of the human relationship with rest began in the 1700s with discussion surrounding leisure, with "leisure" being described as free time when not working or occupied, (Cunningham, 2014) which overlaps with how this research paper defines rest. It should be noted that historic commentary centres entirely around male working habits, at a time when women were often confined to working within the household. During this period, leisure would often be prioritised. Men who could afford to would only work long enough to secure a sufficient wage and would take several days off per week if they did not need the money (ibid).

This attitude was significantly altered during the Industrial Revolution when the job market moved from primarily agricultural to primarily factory-based (Golden, 2009) and it became standard to work over 60 hours per week (Whaples, 2001). This was partially due to a harsher economic climate forcing employers to increase productivity (Cunnigham, 2014). It was during this period that the length of the working year increased, and seasonal downtime was reduced (Atack et al, 1992). This highlights that productivity had begun to be prioritised over rest in order to maximise outputs, and that overwork was becoming normalised. "Overwork" describes routinely working an excessive amount in a manner that is detrimental to health (Lufkin, 2021).

There was, however, a disconnect in this trend of overwork between the working class and the "leisure-class" (Velblen, 1899) who were particularly prominent in Europe in the 1800s (Burke, 1995). Those in the upper parts of society, whose wealth dictated little need for work, still were able to prioritise leisure, and by extension rest. It can therefore be assumed that working environments and leisure environments had no overlap, which is important to note when considering the spatial design during this period (Figures 1 & 2).

Conclusions drawn from the historic context surrounding rest highlight that work, and by extension a lack of wealth, was often the biggest barrier to a healthy relationship with rest.

Figure 1: 1800s home interior (Brooklyn Historical Society, n.d)
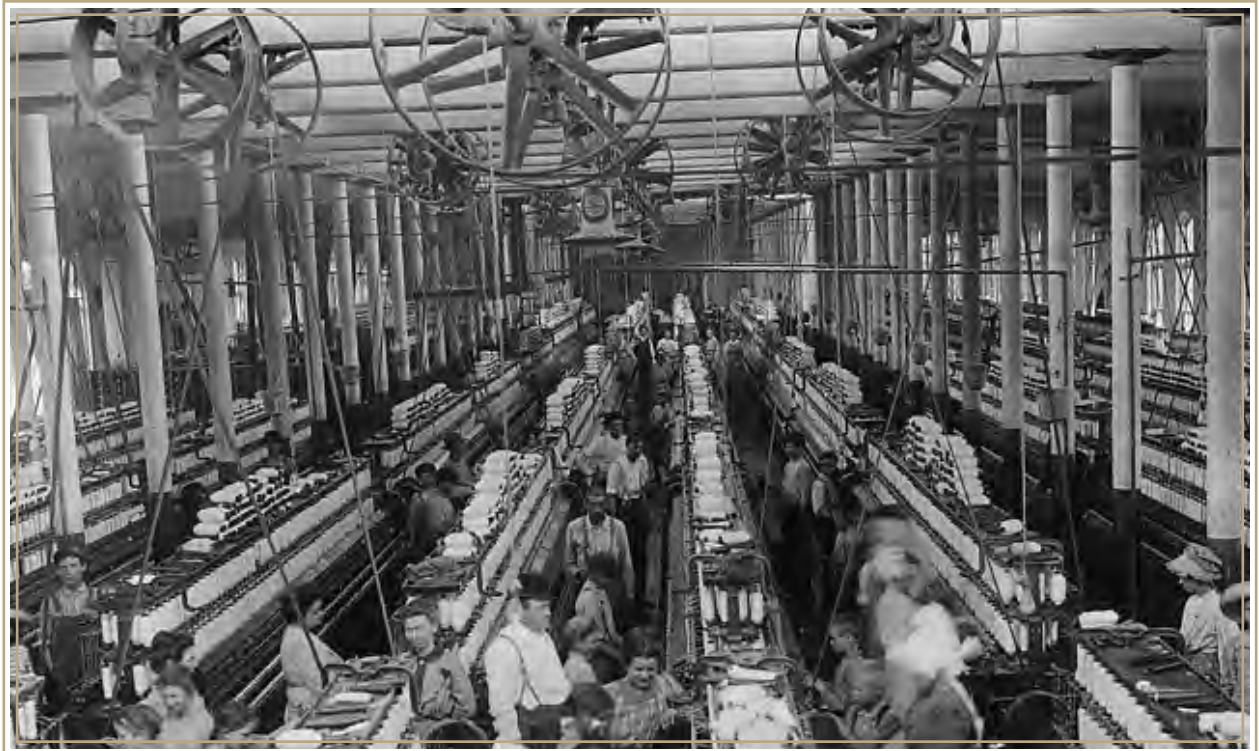
Figure 2: 1800s workplace interior: a cotton mill (History Crunch, n.d)

When discussing relationship with rest, activities which serve as obstacles to rest must be considered. It can be argued that the greatest obstacle to a healthy relationship with rest is work, specifically overwork (Hammond, 2016), which mirrors the experience of the historic working class. The typical working week has shortened significantly since then, and is now roughly 40 hours a week (ONS, 2021). Despite the working hours being reduced, the current generation is arguably the most overworked in history (Hammond, 2016) with many working 9.2 hours per week of unpaid overtime (Richardson et al, 2021). This suggests that the current structure of the working week does not allow sufficient time to handle the volume of outputs. It has also been recognised that a period of overwork is the most common precursor to a period of rest (Bernhofer, 2016), suggesting that the workload is causing extreme exhaustion.

It is important to consider that "work" now constitutes a larger number of tasks outside of employment. This is because historical studies often referred to any time outside of employment as leisure time, without accounting for how this time was used (Cunningham, 2014). More recent studies take into consideration that much of this time is spent on unpaid work (Criado-Perez, 2019).

"Unpaid work" refers to unpaid care and domestic work which will require the same levels of attention as employment. These are often overlooked as they stereotypically fall to women (Criado-Perez, 2019). Many are unable to fulfil their job responsibilities because of the unpaid work that they must complete. This work is often relied on by family members and will, therefore, take priority (Ferrant et al, 2019).

There are a number of new modes of work which have emerged in the 21st century that serve as restrictions to rest time, the most prominent of these being technology. Technology is accessible 24/7 meaning it can be hard to create boundaries from online work, particularly if said work involves social media, which requires workers to remain engaged with a continuous stream of new content (Waizenegger, 2016). Technology is one of the main causes of stress (Bucher et al, 2013) and it can be hard to create distance from these applications which are addictive by design (Chauncey, 2017). Furthermore, as social media becomes an integral part of modern life, many people substitute social media for time spent actively resting and do not properly allocate rest time away from their screens (Kang et al, 2019).

It is also important to consider the impacts on rest in relation to the COVID-19 pandemic. "Stay at home" orders and lockdowns resulted in 46.6% of the UK population working from home in April 2020 (ONS, 2020) which has made having a healthy relationship with rest more important than ever. A study on work-life balance during the pandemic found that those with high work-home integration (Figure 3) suffered greater levels of stress, particularly if there were children in the household (Schieman et al, 2021). "Work-home integration" refers to the level to which someone's working environment overlaps with their home environment (ibid). This highlights the difficulty of combining productive and restful spaces and suggests that they cannot successfully coexist.

Figure 3: Example of high work-home integration (Financial Times, n.d)

Kaplan's Attention Restoration Theory (1995) proposes that attention fatigue can be caused by large amounts of time spent focusing. The solution for this, Kaplan argues, is time spent removed from attention demanding tasks, allowing attention capacities to recover, with the most powerful responses recorded when this time is spent in nature (Kaplan, 1995).

This theory has a particular focus on how attention is directed. When concentrating on specific tasks to be completed, attention capacities will become drained. It can be argued that evidence showing that nature has the most restorative effect relies on attention being directed towards the surrounding nature (Ohly et al, 2016). This suggests that focus on something separate from a stressor is the key factor in achieving restoration.

This is perhaps the strongest case for the power of rest, highlighting how rest can be integrated into daily lives by directing attention away from stressful triggers and tasks. Designers considering encouraging rest should have particular focus on bringing Attention Restoration Theory into the interior. There has been recent research into how this theory can improve the experience of working in the office (Figure 4) or working from home (Figure 5), with evidence of stress reduction at work when nature is integrated into the existing environment (Korpela et al, 2015, Craig et al, 2021). However there has been little research into interior spaces with the sole focus of restoration.

Figure 4: Principles of attention restoration theory in workplace (Steelcase, n.d)

Figure 5: Principles of attention restoration theory in work from home setup (Greenhouse Studio, n.d)

<u>The Seven Types of Rest</u>

New research by Dr Saundra Dalton-Smith (2021) proposes that there are seven types of rest which must be fulfilled in order to be fully restored. These are physical, mental, emotional, sensory, spiritual, creative, and social rest. Each type of rest should be tackled individually as each has different requirements. Dalton Smith (2021) provided the following explanations for how each type of rest can be achieved:

Physical rest can be either passive (sleeping) or active (yoga, stretching to improve circulation); mental rest describes disconnecting from work; emotional rest requires the ability to freely express one's emotions; spiritual rest describes connecting with the bigger picture; social rest can be either time alone or time spent with those who refresh one's energy; sensory rest is time away from technology screens, bright lights and loud noises; and creative rest involves freely expressing creativity.

This research overlaps with Attention Restoration Theory as it encourages not just physically relaxing but also disconnecting from stressors. There is a strong focus on identifying which type of rest is needed in order to achieve restoration.

Where We Rest

When considering spaces where rest is prioritised, retreats must be looked at in detail as they are considered one of the only existing locations where encouraging rest and restoration is the primary function (Gill et al, 2019).

The Origins of Retreats

Retreats emerged within the Christian community in the early 1500s and were popularised by St Ignatius of Loyola (Pfieffer, 2013), who has now been named the patron saint of spiritual retreats (Bento de Silva et al, 2021). Ignatius was a Spanish soldier who was injured during battle. During his turbulent recovery, he reconnected with God, learning to distinguish between his selfish desires and those which would allow him to dedicate his life to God (Paprocki et al, 2020). This led him to develop the Spiritual Exercises, a series of meditations related to the sinfulness of humanity and the resurrection of Christ, with the goal of bringing order to one's life by encouraging embracing something bigger than oneself (Sluhovsky, 2016). These exercises were the foundation of the Christian retreat which became widespread in the 17th century.

Retreats are also considered an essential part of Buddhism, with modern mindfulness practices often originating from Buddhist principles (Farb, 2014). The most notable example of retreat in Buddhism would be Vassa. This is a three-month retreat during the monsoon season in Southeast Asia. This practice was common in India when the heavy rain prevented travel, and therefore many would undergo a retreat. It was popularised when the Buddha took part and then the practice was continued and adopted as part of Buddhism following his death (Brittanica, 2016).

A 2014 study explored how traditional Christian and Buddhist retreats could be combined. The study found that both religious retreats have a focus on directed attention. Ignatian Spiritual Exercises encourage considering each moment in its relation to God; similarly Buddhism encourages being present in every moment (Tamayo-Moraga, 2016). Furthermore, both retreats fundamentally rely on meditation and introspection. This highlights the overall outlook and practices required to achieve restoration in the context of religion.

<u>Non-Spiritual Retreats</u>

Non-Spiritual Retreats began to emerge in the 20th century. Following the structure of traditional retreats, they were rooted in the principles of Christian and Buddhist retreats but removed the focus on God and spirituality. The rise in demand for wellness retreats has been attributed to a number of elements including high work-home integration, stress management needs and a thirst for personal development that cannot be achieved due to the demands of everyday life (Kelly, 2010).

Wellness retreats were developed in America in the early 1900s due to fears that rapid industrialisation would have a negative impact on the bodies of workers, and therefore their ability to have long working lives (Treleaven, 2019). As these job roles required physical exertion over long hours, there were concerns that it was depleting too much energy. This highlights how employment concerns have continually been the reason behind the need for restoration.

A 2019 study evaluated the features of retreats which had the highest restorative outcomes. The features were identified as spiritual activities, spending time in reflection, time away from technology and time relaxing (Gill et al, 2019). This selection of activities offers a rough cross section of the features of modern-day retreats, and those which should be included in a retreat design prioritising restoration.

Stress at work has been noted as a key contributor to the decline of restorative effects quickly following a retreat (Gill et al, 2019), therefore it is important to identify whether restorative outcomes can be achieved during the working day. This paper defines retreat as a limited period of isolation during which an individual withdraws from their regular routine. This definition can therefore include everyday moments of retreat. Understanding how restoration can be achieved in short instances will allow a more informed and effective retreat design. This aligns with the principles of Christian retreats which, in the nineteenth century, began to encourage dedicating a few hours out of the day to the Spiritual Exercises, in a practice known as "Observation" (O'Malley, 1993).

One example of how design has been used to integrate rest into the working day is a product called "Nutshell" (Figure 6). Nutshell is a portable fabric pod for use when seeking solitude in the workplace (Magee, 2014). This design would cater for the social and sensory rest categories within the seven types of rest. This example highlights that simple design interventions can mimic the effects of traditional retreats.

Figure 6: Nutshell (Magee, 2014)

Figure 7: Hush (Buckle, 2013)

Another example of a design intervention encouraging rest is "Hush" (Figure 7), a cocoon-like structure constructed from felt and biodegradable materials (Buckle, 2013). The designer, Freyja Sewell, describes Hush as "a personal retreat" and aimed to create a private world within a public setting (ibid).

Both of the designs discussed involve creating an enclosed personal space for users to retreat into. This suggests that everyday retreats require a clear disconnect from the surrounding environment. However, isolation does not have to be physical. The BBC's Rest Test, a worldwide survey on subjective experiences of rest, found that the activities which survey participants considered the most restful were solitary activities such as reading, listening to music, or daydreaming. This prompts the question of whether it is actually the physical presence of other people whom individuals need respite from (Hammond, 2016). These activities all involve removing oneself from the current environment by focusing on something else, however they do not require a removal of the surroundings from sight. A possible area for further research would be for designers to consider the creation of rest interventions which do not involve physically blocking out the surrounding environment.

Designing a Relationship with Rest

Designing for Rest

Having now considered the history and theory surrounding designing a relationship with rest, this research paper will now discuss existing design case studies which have succeeded in encouraging restoration, and how they have achieved this. A recent study found that biophilic design is an emerging trend in retreat design (Global Wellness Institute, 2018). Biophilic design is a design strategy used to connect visitors with nature by incorporating direct and indirect sources of nature into the interior (Terrapin Bright Green, 2014). The study found that the use of biophilic design in the wellness tourism industry stimulated all five senses of guests, creating inviting spaces which encouraged rest (Global Wellness Institute, 2018). 1 Hotels, a chain of sustainable luxury hotels, is mentioned in the study, having had particular success utilising these principles (Figure 8).

Figure 8: Biophilic design at 1 Hotels (1 Hotel, n.d)

Another fundamental principle of retreat design is the surrounding location. A survey found that most retreats are located near the sea or the mountains (Figure 9), with the secluded location often being used as a selling point (Kelly, 2010). Aside from the remote location mirroring the desired experience, there are benefits to the vast surrounding landscape. Such landscapes have been identified as tools for introspection, encouraging retreat visitors to consider themselves within the larger context of the world (Mourtazina, 2020). Any new retreat propositions should pay particular attention to the surrounding vistas. This provides further evidence of the restorative effects of nature.

Figure 9: Example of retreat in mountain setting: Stein Eriksen Lodge, Utah (Hughes, 2020)

Looking in particular at examples of retreat design, one notable example of spatial design encouraging rest is Maggie's Leeds Cancer Centre (Figure 10). This is a treatment centre with a focus on evoking a sense of wellness with every design decision (Maggies, n.d). The designer included soft lighting and natural materials, as well as integrating spaces for both socialisation and individual restoration.

Figure 10: Maggies Leeds Cancer Centre (Heatherwick Studios, 2012)

Wellness architecture as a whole has been defined as having a focus on using "socially conscious systems and materials to promote the harmonious balance between physical, emotional, cognitive and spiritual wellbeing while regenerating the natural environment" (Global Wellness Institute, n.d, para 1). This is a trend in retreat design, with a prominent example being The Retreat at Blue Lagoon, Iceland (Figure 11). This retreat was built around the Illahraun lava plane which hugely impacted the design and methods of construction. The aim of the architecture was to preserve and enhance the relationship between humankind and nature (Blue Lagoon, 2019).

Figure 11: The Retreat at Blue Lagoon, Iceland (Blue Lagoon, 2019)

Retreat design often has a particular focus on sustainability because many retreat organisers believe that looking after the Earth is an extension of taking care of oneself (Walker, 2019).

When considering design as a device for restoration, it is useful to consider how design can be used as a tool to encourage productivity, the counter of rest. Spatial design in offices is often utilised for this purpose. A particularly striking example would be an office in Indonesia designed by Studio Air Putih (Figure 12). The design of this space was intended to dictate productivity and limit views of the outside world which could serve as distractions (Griffiths, 2018). The studios are lit from above as the exterior windows are surrounded by brick walls. This is a very drastic approach to ensuring productivity by creating a harsh environment.
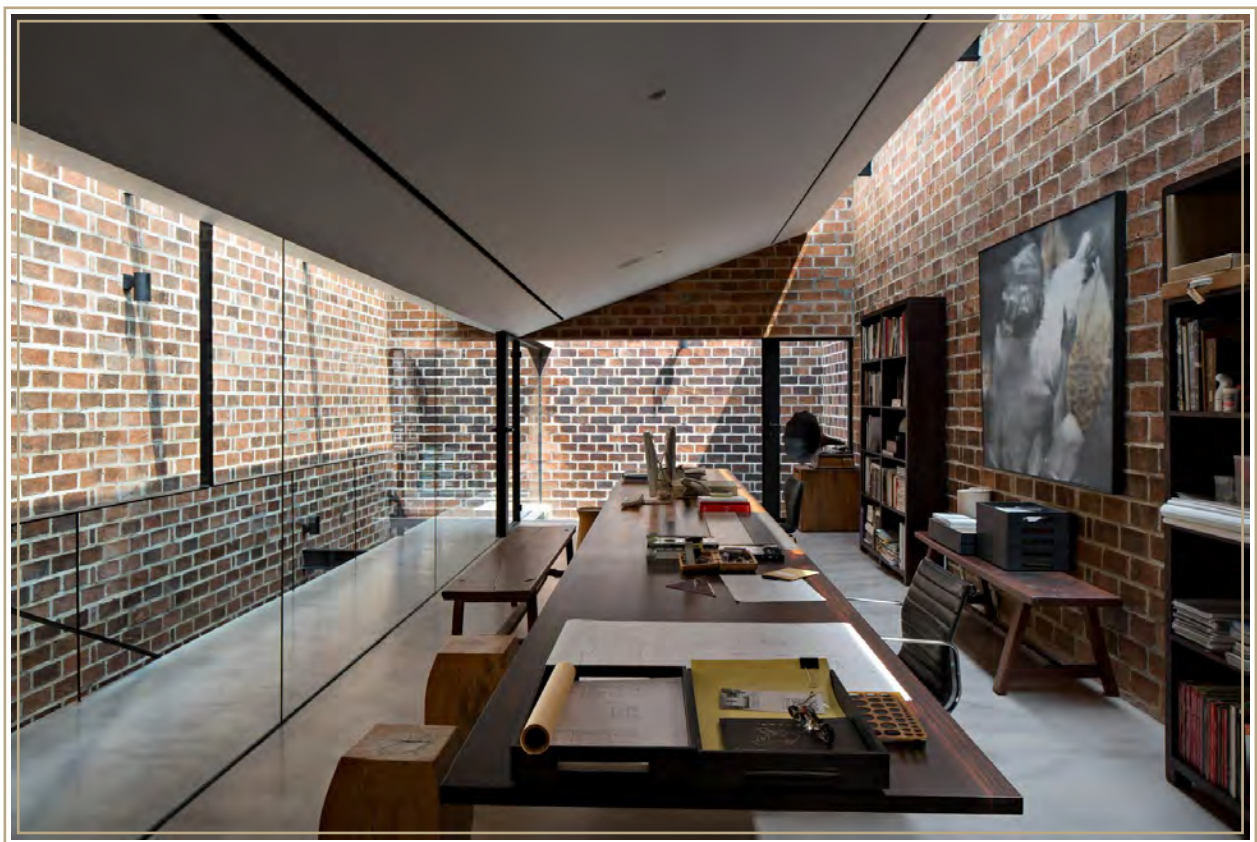
Figure 12: Office design by Studio Air Putih (Griffiths, 2018)

Another example of spaces which are designed for productivity would be libraries (Figure 13). These spaces are designed to create a focus on the books and workspaces, often removing or limiting views of the outside world. These spaces differ from office environments as there is a stronger focus on creating a comfortable environment that users can stay in for many hours. Ensuring a comfortable experience is another way to establish minimal distractions, as discomfort would divert focus away from productivity (Hohmann, 2006).

Figure 13: Law Library in Mexico City (Gibson, 2020)

There are also many examples of design interventions which are used to encourage productivity. These alter the user's perception of the surrounding space, either by creating an enclosure or limiting surrounding views. "Tomoko" is an intervention which can be used in either seated or standing settings (Figure 14). By creating a sheltered enclosure around the user's head, this product aims to eliminate distractions both visually and sonically (Vivero, n.d).

Figure 14: Tomoko by Vivero (Vivero, n.d)

It is interesting to note that both designs of everyday retreats and productivity interventions involve removing views of the user's surroundings. However, questions are raised about how the users mental health would be affected if using these interventions for long periods of time (Dezeen, 2021). "Nook Solo Pods" (Figure 15) were designed to be a flexible workspace for one, and have considered this impact on mental health (ibid). It has been identified that open plan office spaces provide too many distractions meaning that employees actually get more work done in solitary environments (Gensler, 2016). Nook have tried to tackle this by creating individual workspaces where users can still see the outside office space, this affords a visual connection to others while limiting the physical and sonic distraction, preserving mental wellness (Dezeen, 2021).
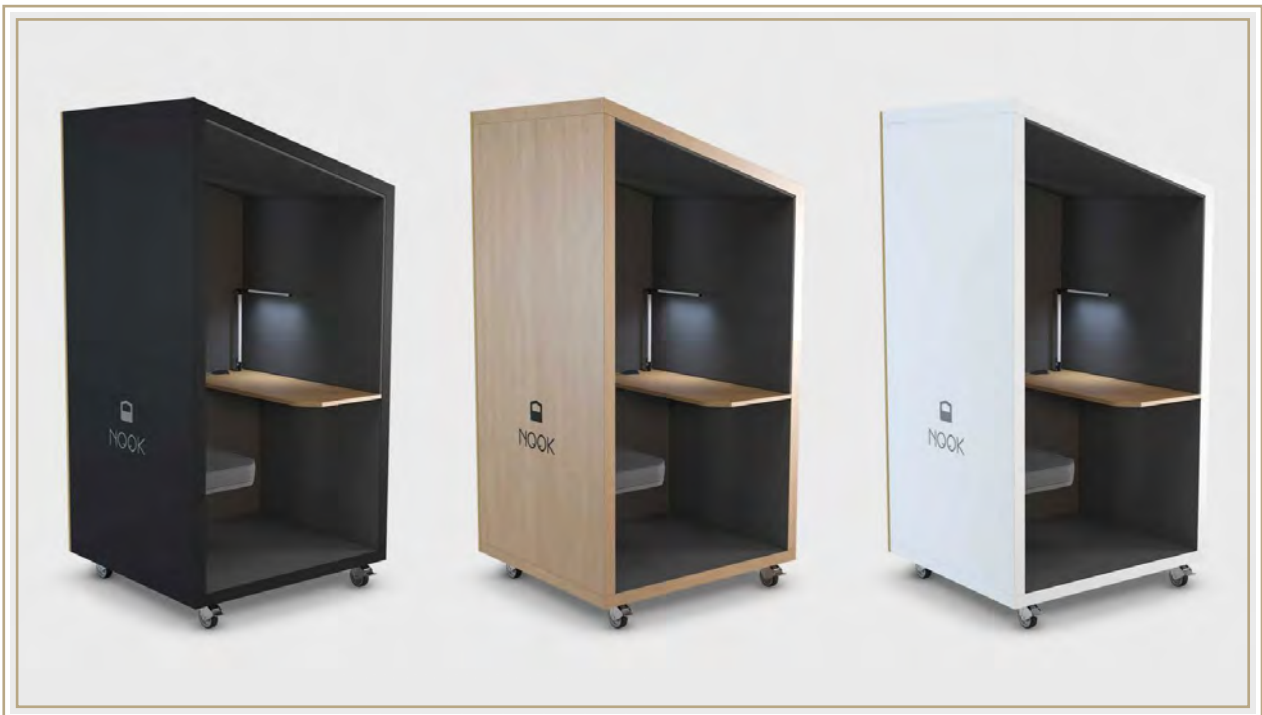

Figure 15: Nook Solo Pods by David O'Coimin (Dezeen, 2021)

Summary of Section

This design contextualisation has provided an overview of the current knowledge surrounding society's relationship with rest. The historic context of the prioritisation of rest was explored, identifying that employment was the primary cause of unhealthy relationships with rest. This issue was also prominent in discussion surrounding the current relationship with rest; however technology, unpaid work and high work-home integration were also identified as issues. An exploration of Attention Restoration Theory has established this as a key principle when considering how design can be used as a tool to encourage prioritising rest. It was noted that there was a gap in the knowledge in relation to Attention Restoration Theory and interior spaces.

A look at retreats throughout history has proven that isolated environments have the highest restorative benefits. It was identified that isolation does not have to be physical and that there are a number of everyday interventions which can have restorative benefits. This aligns with new research into the seven types of rest which encourages identifying the area of rest which is needed, suggesting that all seven are needed to be fully restored. Further study should look into primary experiences of the seven types of rest as these have not yet been documented.

In conclusion, for design to encourage us to view rest as a priority, it must create a clear disconnect from the modern working world and, therefore, allow visitors the opportunity to recognise the true power of restoration.

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DESIGN RESEARCH

Introduction

This section aims to investigate topics which were identified as being under-explored in the preceding section. This will provide a greater understanding of how design can initiate restoration by looking at primary experiences of the seven types of rest, as well as considering how interior spaces can be designed with the sole purpose of restoration.

Secondary research has identified that design can encourage restoration by creating a clear disconnect from the modern working world. Overwork, along with technology and high work-home integration were identified as the areas which currently prevent a healthy relationship with rest (Hammond, 2016, Kang et al, 2019, Schieman et al, 2021). Kaplan's Attention Restoration Theory proposes that time spent in nature has the highest restorative benefits (Kaplan, 1995). Some attempts have been made to implement this theory within workspace interiors (Korpela et al, 2015, Craig et al, 2021), however it has not been considered within the context of a fully restorative environment.

Therefore, it was decided that design research should be conducted using several qualitative research methods. These were: a cultural probe kit centred around experiences of the seven types of rest, a photo elicitation survey on existing spaces and whether they promote productivity or rest, and a co-design participatory research workshop on designing for rest.

Guerilla Research

Aims

The first research method aimed to gain an understanding of how the seven types of rest are currently experienced in the modern working world. There has been no primary research into this subject matter thus far.

Methodology

In order to gain an initial insight into the depth of awareness and experience of the seven types of rest, guerrilla research tactics were used. This took the form of an online survey, completed on Thursday 28th October 2021, which received 20 responses. Guerrilla research methods are ideal for the initial stages of research as they allow the researcher to define the areas of the research question which need to be further explored (Tawak, 2019). The survey explored the current perception of rest using seven questions. The questions which provided the most meaningful insights are presented below, with the full data collection presented in Appendix A.

Results from Guerilla Research

The questions presented below (Figure 16) asked participants to rate their rest that week on a scale of 1-10, with 10 indicating they were fully rested and 1 indicating they were not at all rested. Participants were then explained the theory of the 7 types of rest, and asked to re-rate their rest with this concept in mind. The research identified that participants rated their levels of rest to be lower after considering the seven types of rest.
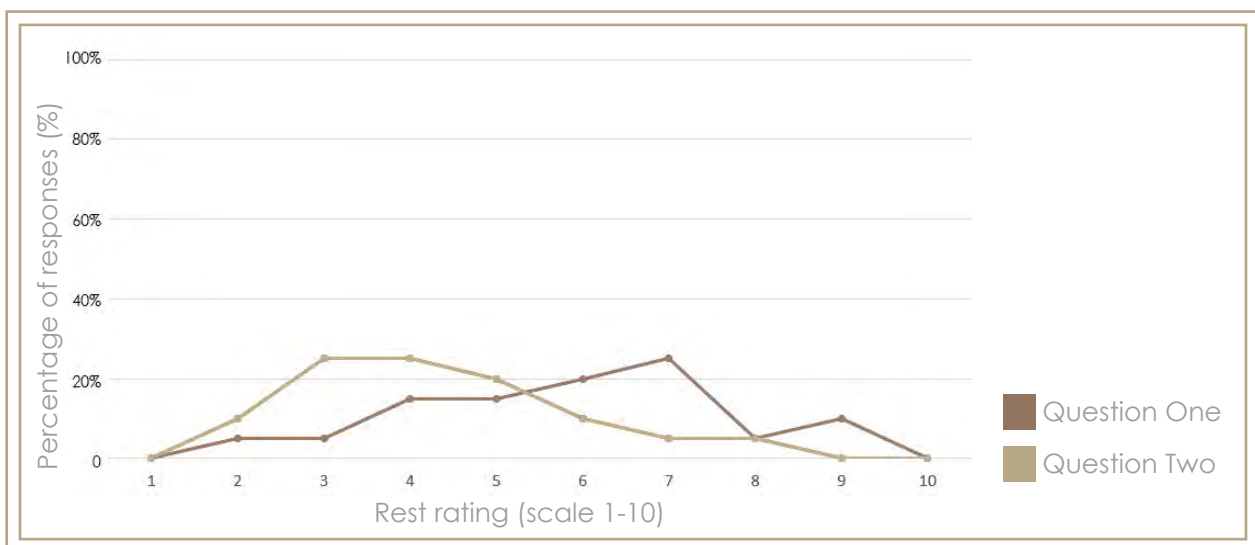

Figure 16: Response to question 1: *"How much rest would you say you have had this week? (1-no rest, 10-fully rested)"* and response to question 2: *"There are 7 types of rest which we need to be fully restored. These are: physical, mental, sensory, creative, spiritual, emotional and social. Knowing this, how would you rate your rest now?"*

The second question which provided meaningful insight asked participants to indicate the type of rest they prioritised the most and they type they prioritised the least (Figure 17). Physical rest was prioritised most, and spiritual the least, however this could be due to a lack of participants who identified as religious.
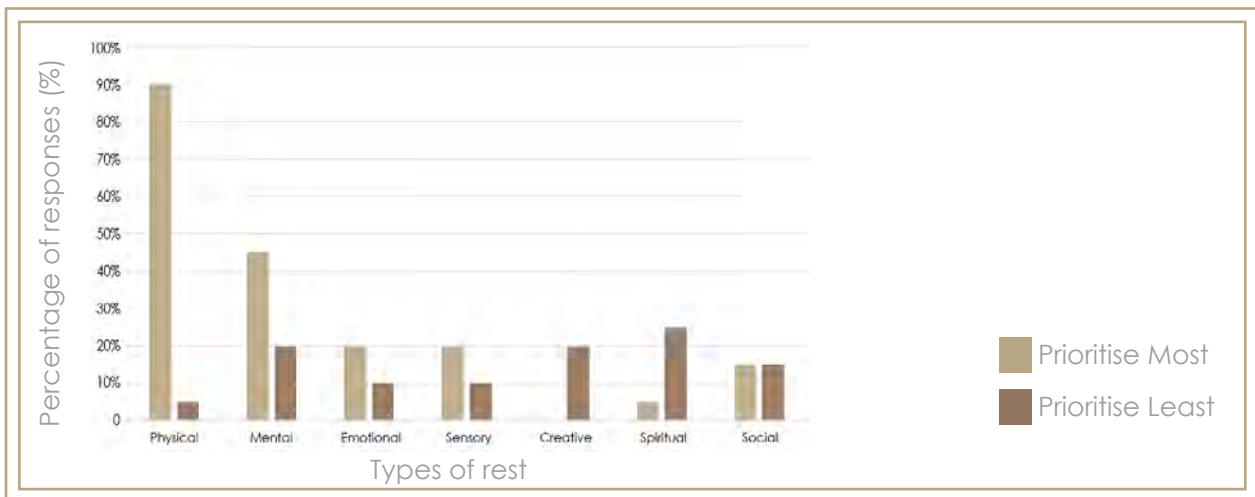
Figure 17: Response to question 3: *"Which type(s) of rest do you feel you prioritise the most?"* and response to question 4: *"Which type(s) of rest do you feel you prioritise the least?"*

This initial research identified that, although most people are not aware of the seven types of rest, once this concept is explained, participants are able to relate their experiences of rest to these categories. The guerrilla research also indicated that more detail was needed on the way these types of rest were experienced, including the rest duration and location. This informed the design of a cultural probe kit: The Rest Probe (Figure 18).

"The Rest Probe" Cultural Probe Kit

This research task aimed to understand in more detail how the seven types of rest are currently experienced in everyday life.

Methodology

A cultural probe kit is a series of open-ended activities which invite participants to express their feelings in a process of reflection. The format of the tasks aims to provide inspiration for designers (Stappers et al, 2014). A successful cultural probe kit gains insight into users everyday lives with minimal input from the researcher (Gaffney, 2006).

The Rest Probe (Figure 18) included six tasks, two of which were to be completed over a week. The probe was designed to provide a greater understanding of rest in daily life. The first task involved participants indicating their current perception of rest using three scale 1-5 questions. The participants were to revisit these questions after completing the rest probe. The second task asked participants to log their time spent resting over the course of the week. Similarly, there was a diary task where participants were to describe their experiences of rest each day. Participants were also tasked with writing the restrictions they faced to achieving each type of rest in another task. A fifth task asked participants to draw a map of their home and colour where they experience each type of rest. Finally, participants were asked to photograph or draw the spaces they found to be most productive, and most restful, respectively, outside of their home environment.

The probe was given to four participants, selected due to their varying demographics and stages in life. These were: a full-time student, someone in part-time employment, someone in full-time employment and someone retired from working.


Figure 18: The Rest Probe

<u>Results from Cultural Probe Kit</u>

Meaningful trends found in the analysis of the probe kits are presented here, with the full findings and copies of each participant's responses displayed in Appendix B. The rest probe data showed trends across participants in the types of rest which were experienced the most: physical and social (also sensory rest, with the exception of the student participant). The types of rest which were indicated to be the most difficult to achieve were spiritual, mental and emotional. These could, however, be assumed to also be the hardest to define. The results were most consistent when participants were asked to map where in their home they experienced each type of rest (Figure 19). The most restful locations, outside of the home environment, all involved physical activities (walking/ shopping/ driving) suggesting that actively disconnecting from stressors has the most powerful restorative outcomes.

Type of Rest	Location in Home
Physical	**Bedroom**
Mental	**Living Room**, Kitchen, Bedroom, Entrance
Sensory	**Bathroom**, Kitchen, Bedroom, Living Room
Emotional	Living Room, Dining Room, Bedroom
Spiritual	Bedroom, Bathroom
Social	Living Room, Kitchen, Dining Room
Creative	**Kitchen**, Bedroom

Figure 19: Table showing shared responses from Rest Map task. Responses in **bold** were shared by at least 3/4 participants
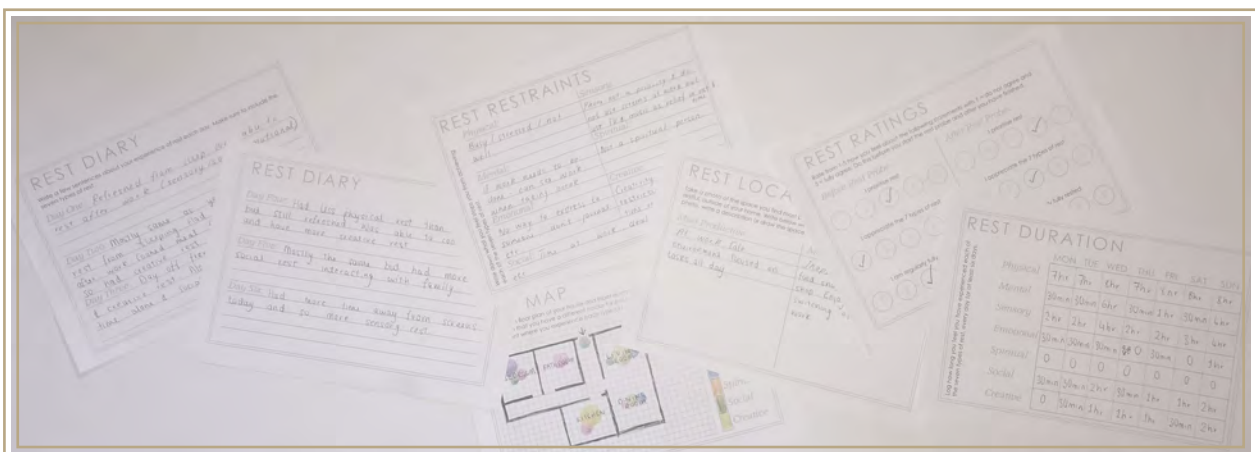
Completed Rest Probe

Restful Spaces Photo Elicitation

This research approach aimed to identify patterns within spatial design choices which indicated rest, in order to conclude the ways in which a space can be designed with the sole purpose of restoration.

Methodology

The next research method conducted was a photo elicitation survey. This method was utilised to identify the existing subconscious relationship between spatial design and productivity versus rest. This relationship was explored in the **Design Contextualisation**; however, it was identified that it had not been considered in detail how spaces could be designed with the sole purpose of restoration. Therefore, this study aimed to gain opinions on whether existing examples of spatial design encourage rest or productivity.

Photo elicitation is a research method which originated as a method of interviewing. This method involves using visual imagery to generate comments which will inform new knowledge. This method is considered to make interview findings more vigorous as images can evoke memories and incite deep emotional responses (Glaw et al, 2017). Photo elicitation was chosen for this study as it allows a number of spatial designs to be studied without the need for study participants to physically visit the spaces. The photo elicitation was conducted as an online survey rather than an interview as the photos were the main focus of this part of the research, as compared to traditional photo elicitation interviews where the photos serve as prompts or supports to the central interview material.

The survey was completed online and took participants an average of nine and half minutes to complete. There were fifteen questions, each showing an image of an interior space. The images were shown to each participant in a randomised order. Survey participants were asked to indicate whether they found each space to be subjectively productive or restful. Below each image there was a text box for participants to describe why they had made their selection. Participants were prompted to mention the features of the space which directly informed their decision.

Each of the images were chosen due to their relation to the research presented in the **Design Contextualisation**. The response to each image was intended to build on the existing knowledge from secondary research. In order to ensure minimal bias, there were set criteria for the selection of each image. The most important of these was that all of the photos were to exclude people, as this could influence the assessment of activities which the space encouraged. Each space was also photographed during the day at eye level. Six of the photos were chosen due to their relation to research surrounding Attention Restoration Theory. These spaces (Figures 20-25) either have strong views of natural surroundings, or have implemented nature into the interior.

Figure 20: Attention Restoration Theory 1 (Block, 2018)

Figure 21: Attention Restoration Theory 2 (Kane, 2020)

Figure 22: Attention Restoration Theory 3 (Interface, n.d)
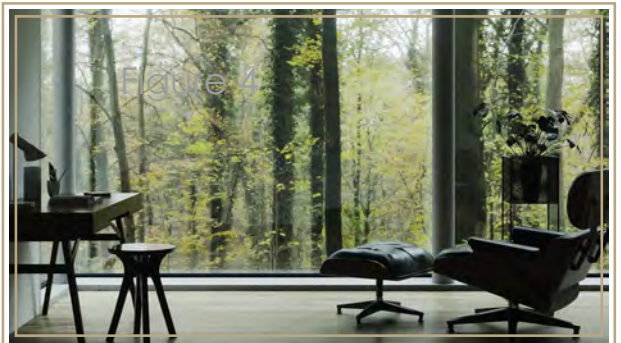

Figure 23: Attention Restoration Theory 4 (Revyakin, n.d)

Figure 24: Attention Restoration Theory 5 (Heatherwick Studios, 2012)

Figure 25: Attention Restoration Theory 6 (WeWork, n.d)

A traditional meditation space (Figure 26) was also chosen as this is an unfurnished, dark room. This was included as part of the survey to consider whether modern working society would recognise this as a restorative environment.

Figure 26: Traditional meditation space (Levy, 2019)

Four of the spaces (Figures 27-30) show examples of traditionally productive environments, to gain an understanding of whether these allow any opportunity for rest.

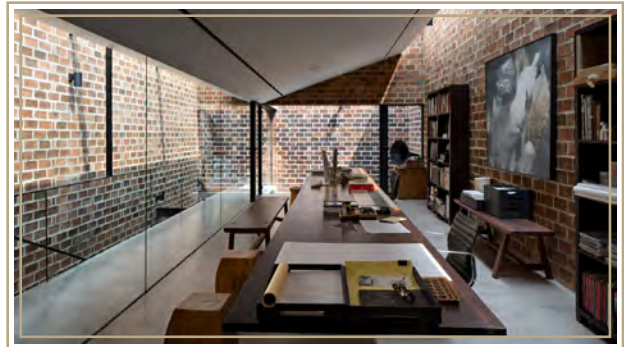Figure 27: Traditionally productive 1 (Home Designing, 2012)

Figure 28: Traditionally productive 2 (Griffiths, 2018)

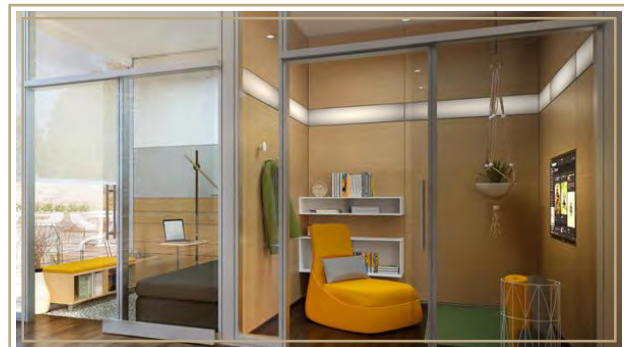Figure 29: Traditionally productive 3 (Aspen Interiors, n.d)

Figure 30: Traditionally productive 4 (Zenbooth, 2017)

A further three spaces (Figures 31-33) were chosen to provide an initial understanding of how lighting design impacts restorative environments.
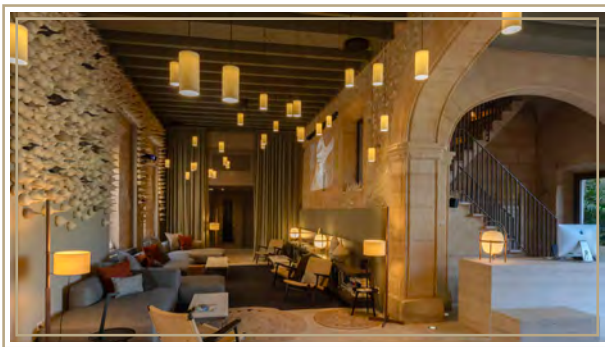
Figure 31: Lighting design 1 (Can Auli, 2019)
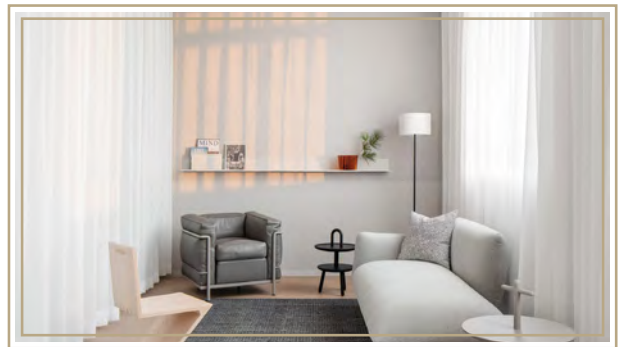
Figure 32: Lighting design 2 (Levy, 2020)

Figure 33: Lighting design 3 (Wang, 2020)
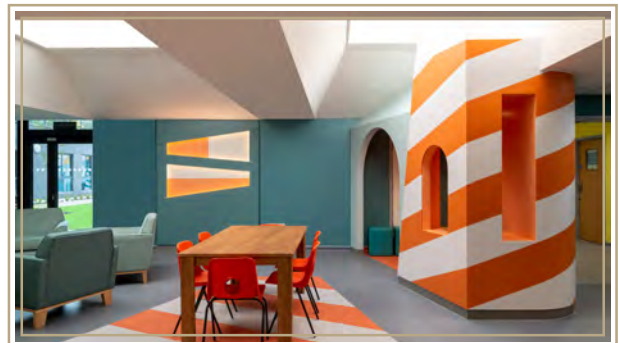
Figure 34: Children's mental health facility (Stathaki, 2021)

The final space in the survey is a mental health facility for children (Figure 34) that aimed to create an uplifting but not homely environment (Stathaki, 2021). This was designed to be a restorative environment, and so its inclusion in the survey questioned if the spatial design was successful or not, and why.

The survey was distributed through social media on Monday 15th November 2021 and received 30 responses. The key findings indicated that the spaces which were found to be more restful than productive were those which had an overall "clean" feeling with minimal visual distraction, with the notable exception of one space (Figure 35) which had multiple lights and wall features. This space had the highest percentage of responses selecting "rest" (87%). Similarly, all of the spaces included due to their lighting design were noted to be encouraging rest. Spaces which had views of the outside nature through large windows also ranked highly as restorative environments. A summary of the results is shown on the next page, the complete findings can be found in Appendix C.
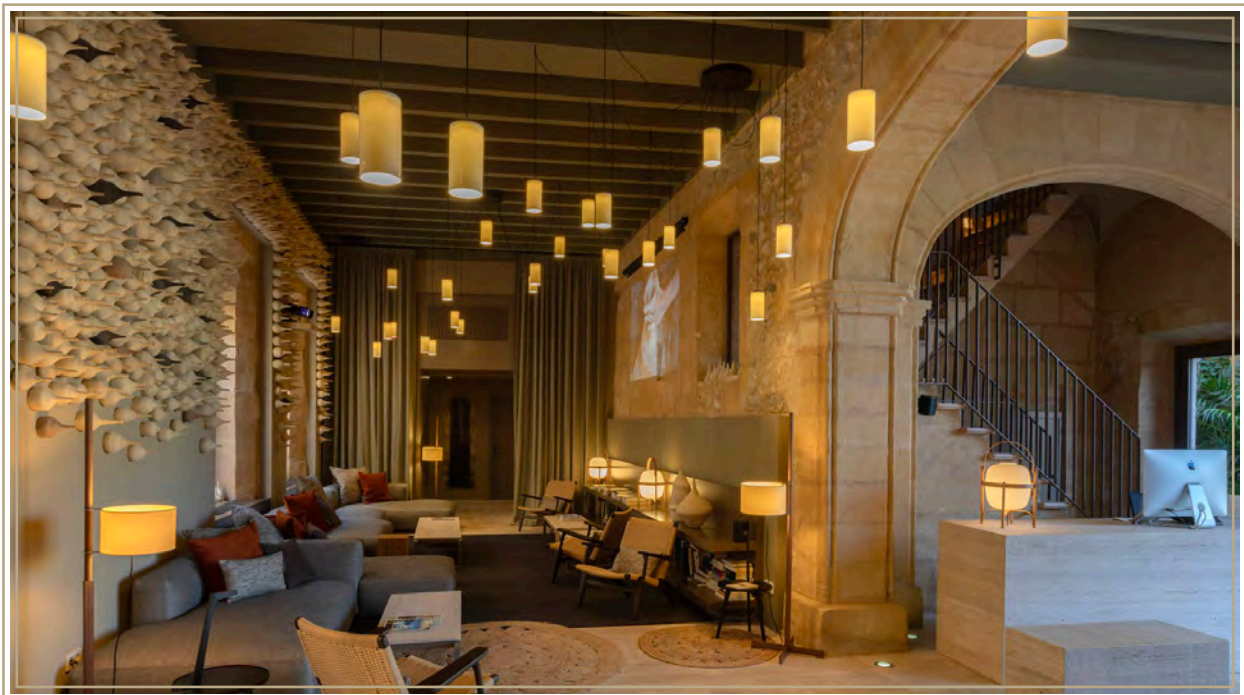

Figure 35: Space voted to be most restful by survey participants (Can Auli, 2019)

Restful 15/30

"Seems like an area to relax/meditate with strong presence of outdoors."

"The clean space would make me feel focused and calm. The work space and open floor plan would be a great modern work environment."
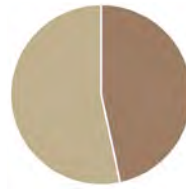
Restful 16/30

"the unique wooden roof and window, which allows bright light to come through and provides a nice view of nature, create a more relaxed and restful atmosphere."

"Clean, very little to no form of distractions"

Restful 16/30

"The space is cosy and the curves are really relaxing to look at. The natural materials are comforting too"

"This one is more difficult to choose but the brightness is energising. Not a stressful productive space but a chilled one"

Productive 20/30

"Looks like a waiting room of break room of some sort. It looks like it is in an area many people can pass through openly"

"Bright lighting and modern decoration make the space look productive"

Restful 22/30

"Big window with good view of the outdoors, the dark lighting and the soft and seemingly comfortable furniture all lead to this being more restful."

"Minimal and easy to concentrate"

Productive 27/30

"Seems like an open-spaced office environment where everyone works beside each other. The "cozy" atmosphere seems almost artificial due to the way the furniture is placed and the way the plants are almost used as props in the middle of the desks"
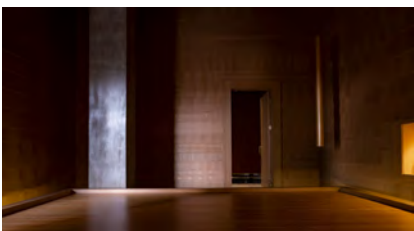
Restful 19/30

"Less light creates a sense of rest, darker atmosphere is often associated with the evening which is associated again with rest/winding down"

"Feels like a very formal space, not sure if I can explain why."

Restful 15/30

"The space looks too comfortable, I don't think I could focus on work when the colours are so pretty! The lighting too is quite dim so wouldn't help with focus"

"Seems ergonomic which looks productive"

Results from Photo Elicitation Survey

Restful
Productive

Productive 17/30

"This is beautiful. The books automatically settle me and all of the furniture is so comfy looking and just puts me at ease. The colour scheme as well is stunning earth tones and warm lighting. I would never leave this room."

"Calming effect of books but ultimately productive"

Productive 29/30

"Pleasant design elements that would contribute to productivity (large table, functional tools, books)"

Productive 21/30
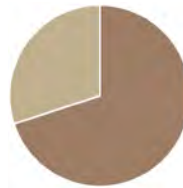
"Less natural light, no windows"

"Suggest an extreme level of focus due to isolated environment"
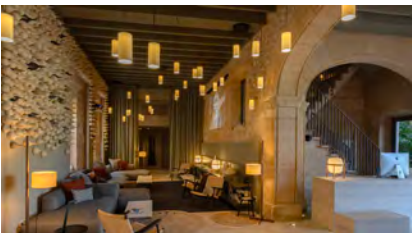
Restful 26/30

"Warm lighting and open low seating is more relaxed"

"Space for collaboration, and lower and above lighting"

Restful 15/30

"Open ended curved features throughout the room create a comforting atmosphere, like the room feels like it's giving you a hug"

"Very bright and collaborative space. I think the brightness is what makes it feel productive"

Restful 21/30
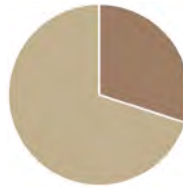
"The use of a minimal colour palette creates a sense of comfort, the choice of furniture also aids this imagery"

"White walls and furniture make the space feel more open and allow for more productivity"
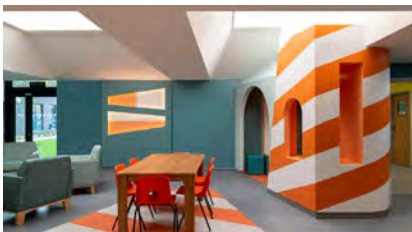
Productive 22/30
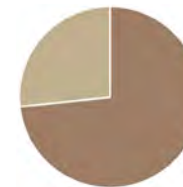
"Not entirely relaxing but feels like a space to switch off from outside world"

"The bright colours create some sort of urgency in my opinion. As well as this, the shapes of the chairs and the high desk feel a bit like school desks"

Results from Photo Elicitation Survey (continued)

Restful

Productive

Co-Designing for Rest

Aims

The final research task aimed to generate insights into the features of a space designed with entirely restorative purposes.

Methodology

The final research method was a co-design participatory research workshop. Co-design is described as a means of open innovation, in which participants from different backgrounds come together to combine their ideas in an interactive design process (Steen, 2013). Research suggests that this process inspires more innovative ideas in comparison to designing individually (Mitchell et al, 2015).

This workshop had three participants, chosen for their backgrounds in psychology and building surveying, respectively. The researcher was one of the participants, in order to moderate and guide the experience, as well as to add input from a designer's point of view, hence ensuring the requirements of co-design were met.

For this co-design workshop, participants were asked to draw a space which they felt encouraged rest. First, each participant drew their ideal environment for rest, including only a room, its windows, and the views outside these windows. The participants then passed their drawing to the person beside them, meaning each participant now had another person's drawing. Next, they were asked to draw the features of the room such as furniture and plants. The drawings were then passed around again. Finally, participants had to draw or annotate the materials, lighting, and textures within the space. This resulted in three drawings of spaces which were designed for rest.

The co-design workshop elicited a number of meaningful findings. In relation to the overall space, the workshop indicated that restorative interior spaces should have large windows and a natural exterior setting. Within the interior, ambience and aesthetics were important, with participants featuring mood lighting and soft furnishings frequently throughout the process. It should be noted that participants were focusing mostly on achieving physical rest and were not briefed on the seven types of rest, however the appearance of features such as bookcases and rugs would support the experiences of mental and spiritual rest. There was minimal inclusion of technology, indicating sensory rest.

Although this research took a simplistic approach to designing for rest, it provided meaningful insight into the perception of restorative environments and how these findings can reinforce the secondary research already completed.
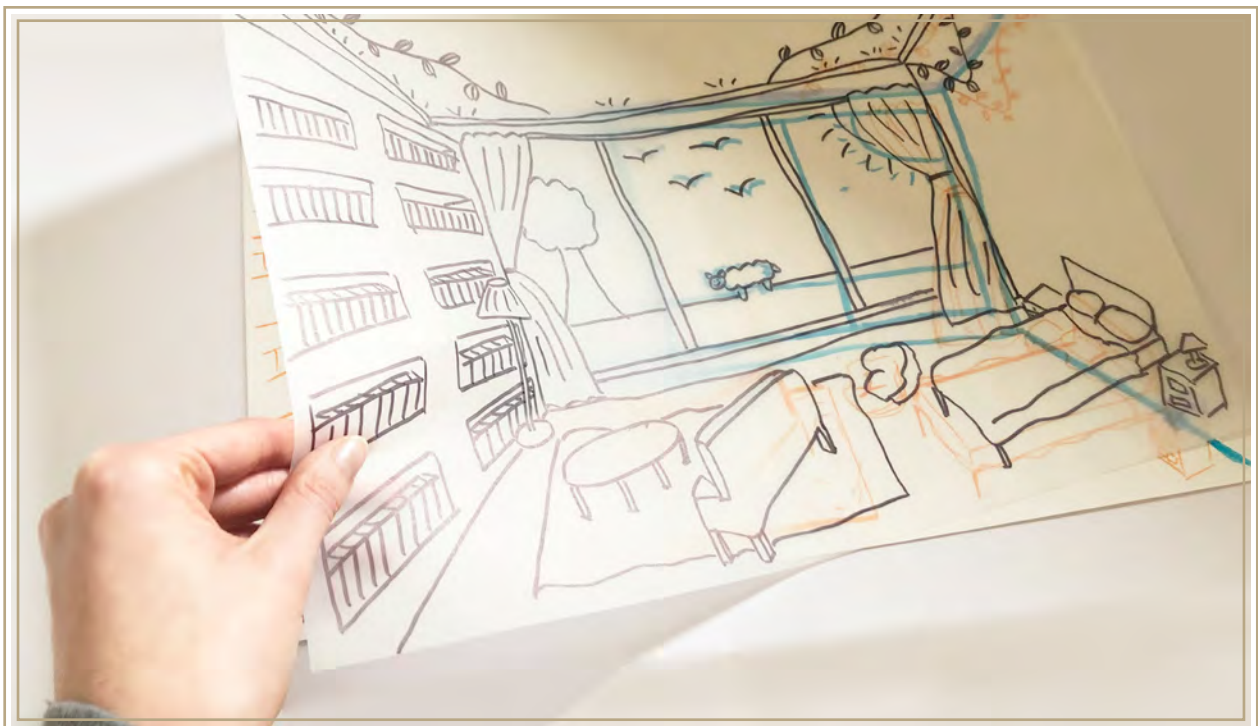
Example of output from co-design workshop

Summary of Section

The design research portion of this study has yielded a number of valuable insights which will aid answering of the research question. This knowledge can inform the future design of spaces with the purpose of restoration and provide an understanding of the obstacles faced in prioritising rest. Starting the research process with a survey provided an understanding of how rest is currently perceived. This knowledge was furthered through the use of a cultural probe kit, which identified how the seven types of rest are currently experienced and the ways in which rest is viewed in everyday life.

The use of a photo elicitation survey provided an understanding of how rest is currently designed for, by asking participants to decide if spaces were productive or restful. This provided a number of meaningful insights, and a number of trends were identified in the spaces which were indicated to be overwhelmingly associated with rest. Once analysed, this research will provide a clear route for designers to follow when designing for restorative outcomes. Finally, the co-design participatory research workshop created a profound understanding of the requirements of a restorative space, as well as identifying existing perceptions of these environments. The findings from this research will be compared with existing knowledge in order to identify how the design of future spaces can create the most powerful restorative outcomes.

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ANALYSIS & SYNTHESIS

Introduction

The findings from the **Design Contextualisation** and **Design Research** sections have reviewed the current perception of rest in the modern working world and have identified how spaces can be designed to encourage rest. Various research methods have been utilised in order to examine how society currently views and prioritises rest.

The research has two key lines of enquiry and so the following analysis will be presented under two headings: "Prioritising Rest" and "Designing for Rest". The first will discuss the research in relation to the steps which must be taken in order for individuals to have a healthy relationship with rest, one in which rest is prioritised and the seven types of rest are equally achieved. The second section will discuss the design concepts and principles which have been found to have the highest restorative influence.

There will be a critical discussion of the primary research findings and their connection to the existing literature. The findings from the **Design Contextualisation** and the **Design Research** sections are synthesised in order to ultimately answer the research question, and to identify any areas for further study.

Prioritising Rest

Rest in the Everyday

This research paper aims to identify how rest can be prioritised. To understand this, the data must be reviewed in the context of everyday life. The **Design Contextualisation** revealed several key findings in relation to this which were, in turn, built upon in the **Design Research**. The first key piece of research identified the barriers which prevent prioritisation of rest. Previous studies identified that prioritising productivity often leads to an unhealthy relationship with rest (Hammond, 2016). It can therefore be assumed that the two opposite practices cannot exist within the same environment, or, by extension, when having the same mindset. Kaplan's Attention Restoration Theory reinforces this argument, by indicating that in order to be refreshed at work regular breaks in natural environments should be taken to reset the mind (Kaplan, 1995). When asked in the "Rest Probe" (page 36) to identify the restrictions against achieving each type of rest, responses included having too high a workload to rest and not having an environment where they can avoid thinking about work. This aligns with the existing knowledge presented in the **Design Contextualisation**.

Interestingly, overwork has been recognised to commonly precede rest (Bernhofer, 2016), meaning that it can also be assumed that many are working beyond the point of exhaustion, giving them no choice but to rest after extreme productivity. Research relating to this shows that the seven types of rest must be satisfied in order to feel restored (Dalton-Smith, 2021), however, this is unknown to most people as this research is not mainstream. This results in a sense of dissatisfaction and overall unsuccessful moments of rest (ibid). The data from the Guerrilla Research Survey (page 34) backs up this theory. When asked to rate their rest that week on a scale from 1-10 with 10 being fully rested, and 1 being not at all rested, 40% of respondents rated their rest between 1 and 5. This percentage doubled when respondents were asked to answer in the context of the seven types of rest, with 80% now rating their rest between 1 and 5. It can therefore be inferred that in order to achieve successful rest, true restoration must be experienced. A greater appreciation of the seven types of rest will engender greater appreciation of this practice, and, by extension, render it a greater priority.

The creation of the Rest Probe intended to build on this data by considering primary experiences of the seven types of rest. Two of the tasks were designed to gain insight into how each type of rest is prioritised. Participants were asked to log their time spent on each type of rest over the course of a week, whilst also filling out a diary of rest each day (Figure 36). The results from these tasks indicated that physical and social rest were experienced the most. However, it should be noted that these types of rest can be considered the most widely known, making it easier for participants to recognise when they had experienced them. Spiritual, mental, and emotional rest were identified to be achieved the least. This supports the data presented in the **Design Contextualisation** as mental rest describes taking a break from the productive mindset. This is a practice which current research suggests is often overlooked due to more pressing priorities (Hammond, 2016).
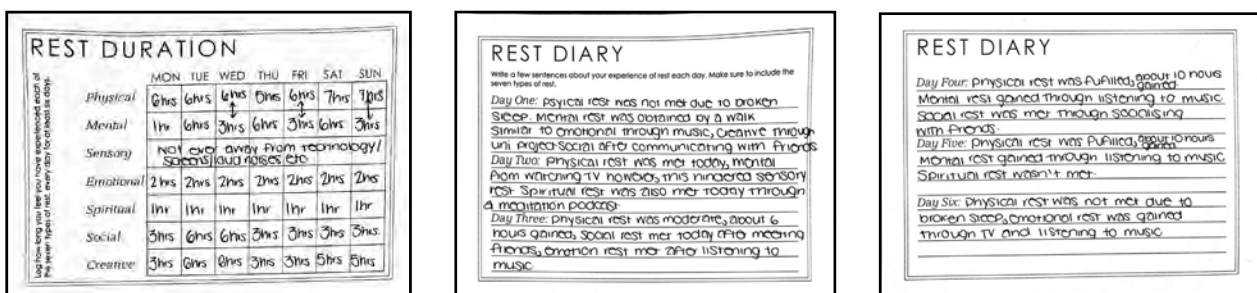
Figure 36: Participant 1's responses in the Rest Duration and Rest Diary tasks

Furthermore, the descriptions in the diary tasks suggest that despite being achieved the least, spiritual rest had the biggest impact on participants, aiding them with preparing to sleep at night and disconnecting from daily stressors. This indicates that they were also achieving mental rest when practicing spirituality. When mental rest was described as being achieved, it often hindered the time for sensory rest as most participants described their mental rest as time watching TV or listening to music. This suggests a hierarchy of importance relating to each type of rest, where sensory rest is prioritised the least. Research relating to this was explored in the **Design Contextualisation**, where technology was identified to reduce rest time due to its addictive design and it's use as a substitute for restorative rest (Kang et al, 2019). The main weakness of this study was that participants only recorded their experiences of rest for one week. A further study could assess the long-term effects of actively practising the seven types of rest each day in order to achieve more significant results.

<u>Rest as Restoration</u>

"Restoration" has been defined throughout this research paper as the process of renewing or recovering mental resources which have been drained in meeting the demands of everyday life (Hartig, 2004). This sense of rejuvenation is the goal that experiences of rest should be working towards. To help provide a greater understanding of how this can be achieved, the probe kit asked participants to describe the experiences which they found to be the most restorative. All participants included activities in their descriptions, such as walking, shopping, or driving. This suggests that mindset and experience have an equally important role as the surrounding environment does. These findings also indicate that solitude is a key factor in successful restorative experiences, as every response indicated that their experience was a solitary one. This finding is consistent with the findings of other studies, particularly as there has been demand for the design of everyday retreats which create solitude within public environments (Magee, 2014, Buckle, 2013).

It was also a trend across the restful locations mentioned to be in an environment which was vastly different from the participant's working environment. One participant was retired, however, as discussed in the **Design Contextualisation**, "work" can also refer to unpaid work such as childcare and housework. This type of work is often overlooked and not considered when discussing relationship with rest (Criado-Perez, 2019). The results from this task support the findings from the **Design Contextualisation** which suggest that members of the modern working society can disconnect from the productive mindset by visually removing oneself from the working environment. This environment is often now at home (Magee, 2014, Buckle, 2013). It has been indicated that the greater the level of disconnection, the higher the levels of restoration. This can be achieved by redirecting the environment, mindset, and activity away from those that encourage productivity.

Designing for Rest

<u>Existing Restorative Environments</u>

A strong relationship between successful rest and certain features of the surrounding environment was found within the existing literature. Creating a physical disconnect from the work environment was indicated to be the most successful approach to achieving restoration during the working day (Magee, 2014, Buckle, 2013). It could be argued that this is because many are unaware of ways to take a break from work which don't involve actively departing from the environment. Furthermore, it is often discouraged to take breaks within traditional work environments, and the architecture often parallels this dictation of productivity (Griffiths, 2018). Therefore, another conclusion could be that blocking out the surrounding environment is the only way to forget that one is in a "productive" space.

In order to examine the relationship between productivity and rest in spatial design further, a photo elicitation survey was used (page 38). Participants were asked to identify whether they found 15 spaces to be productive or restful. The spaces were examined from photographs. This study could be improved and widened in the future by asking participants to visit real spaces. However the findings from this smaller study still allowed for several important contributions to the existing knowledge. From the six spaces which were voted to be overwhelmingly restful, a number of trends emerged. Spaces which contained curved shapes and overall organic architecture were indicated to encourage rest. Participants commented that the reason they found this architecture to be restful was because they found it to be soothing to the eye and therefore more relaxing and comforting. Another possible explanation for this finding is that it is a detachment from traditional architecture, which suggests a retreat-like setting.

Another trend in the restful spaces was that they contained minimal furniture, this suggests that over-decoration could distract from the restful purpose of the space and that an overall clean look is preferred. This was proven in the results as a space included in the study which was designed to be restorative but featured loud colours and patterns (Figure 37) was voted to be productive, with participants stating that "the bright colours create some sort of urgency", indicating that they could not rest in the space. Finally, lighting design was identified to play an important role in the creation of restorative spaces, with images containing soft lighting and atmospheric mood lights ranking among the most restful spaces. These features were also prominent in the outputs from the co-design workshop (page 45).
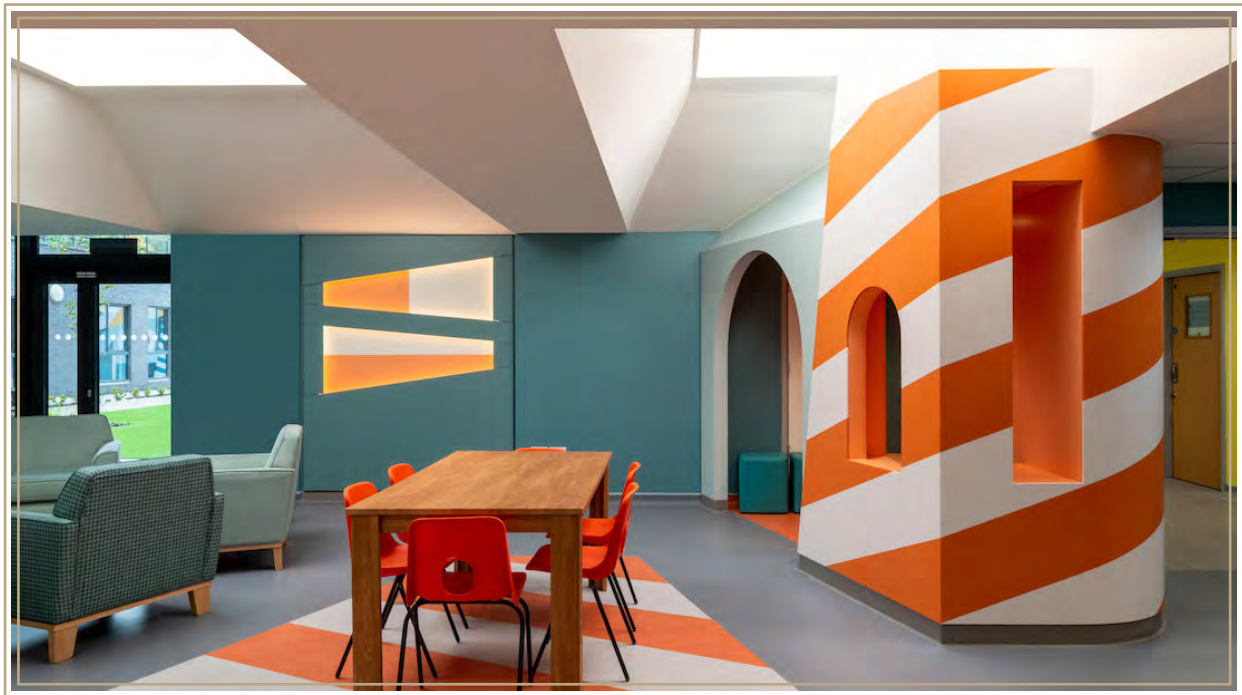
Figure 37: Restorative space voted to be productive (Stathaki, 2021)

A task in the Rest Probe aimed to consider restoration within the home environment. Participants were asked to map where in their house they experienced each type of rest. The results were consistent across all four participants with few discrepancies indicating that the current approach to achieving rest is the same across all demographics. Each participant response can be viewed in Appendix B. These results also indicate that all seven types of rest can be achieved in the home environment, suggesting rest can be integrated into everyday life. Existing examples of successful restorative home environments were shown to be those with low work-home integration (Schieman et al, 2021) and those which incorporated Attention Restoration Theory (Korpela et al, 2015). As mentioned earlier, responses to the Rest Probe indicated that participants were unable to prioritise rest as they did not have an area of their home where they were not in a productive mindset. It can therefore be assumed that, in order to achieve restoration at home, a specific location must be created which encourages rest. This can be created by initiating a disconnect from the working environment. This barrier could be physical, similar to the everyday retreats discussed in the **Design Contextualisation**, or mental, using either the principles of Attention Restoration Theory, or by directing the focus elsewhere. Participants of the probe kit achieved this by distracting themselves with physical activity, however each type of rest can promote different activities, such as time away from screens for sensory rest, or time journaling for emotional rest (Dalton-Smith, 2021).

<u>The Ultimate Restorative Environment</u>

The research question prompts enquiry into the spatial design of the ultimate restorative environment. The research findings which have had the most significant impact throughout this study will now be presented, as a case for how this space should be designed.

Disconnection was identified to be a key theme throughout this paper. Retreat designs were researched in detail as there were numerous prior studies which considered these spaces to be the most restorative (Gill et al, 2019). Vast surrounding landscapes and an overall feeling of closeness to nature were identified as the key attributes within successful retreat environments (Kelly, 2010). It has been suggested that this is because they encourage introspection and consideration of the bigger picture, offering an opportunity for spiritual rest to be achieved. (Mourtazina, 2020). There are other elements which explain the restorative power of vast landscapes, including the visual acknowledgement that one is in an environment which hugely differs from their usual surroundings. This knowledge supports the conclusion that restoration in the modern working world relies on a sense of escapism. Restorative environments should create a visual detachment from the productive mindset.

Throughout this paper, Kaplan's Attention Restoration Theory (1995) has remained consistent with the findings on designing for rest. Secondary research has shown that existing retreat designs incorporate biophilic design in order to encourage powerful restorative outcomes (Global Wellness Institute, 2018). The success of bringing nature into restorative spaces confirms Kaplan's theory. Furthermore, both the outputs from the co-design task, and the restful spaces identified in the photo elicitation survey, included strong views of surrounding natural settings. It is therefore very likely that a strong connection exists between Kaplan's Attention Restoration Theory and rest in interior spaces. Prior studies had not looked into this relationship, and therefore the photo elicitation survey intended to generate new knowledge on the subject. Six of the spaces in the study were chosen as they displayed evidence of Attention Restoration Theory, either through views of surrounding nature or through the use of plants and biophilic design. As explored throughout this paper, biophilic design uses direct and indirect nature within the built environment to encourage visitor connection with nature (Terrapin Bright Green, 2014). Again, prior studies had not considered the relationship between biophilic interior design and Attention Restoration Theory. Of the six spaces, three were chosen to be restful, two to be productive and one had inconclusive results. Of the three restful spaces, two had strong views of nature (Figures 38 & 39) and one had plants within the interior space (Figure 40).

Figure 38: Nature views 1
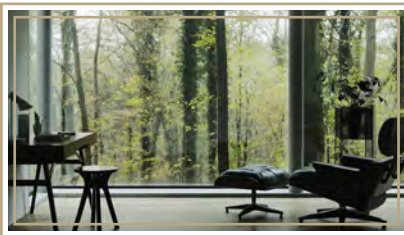(Interface, n.d)

Figure 39: Nature views 2
(Revyakin, n.d)

Figure 40: Interior plants
(Heatherwick Studios, 2012)

Figure 41: Productive space 1
(Kane, 2020)

Figure 42: Productive space 2
(WeWork, n.d)

Through comparison with the productive spaces, it can be concluded that the plants must be fully integrated into the architecture in order for the space to be appear more restful. The two productive spaces (Figures 41 & 42) placed plants in-between desks, whereas the curving architecture of the restful space was moulded around the plans and furniture, making the biophilic design appear to be a more prominent design decision. This conclusion should, however, be interpreted with caution as the other features of the spaces, particularly the furnishing and materiality, could have a large impact on whether the space was determined to be productive or restful. The findings have, however, confirmed that views of vast landscapes are a successful tool for restoration.

Conclusions from Design Research Portfolio

Summary of Findings

This Design Research Portfolio set out to identify the impact that spatial design can have on encouraging restoration, as well as considering how this relationship can encourage the modern working society to view rest as a priority. By looking at the role of rest throughout history and conducting primary research on the experiences of rest today, it has been identified that productivity is often prioritised over rest, in spite of the fact that overwork is the reason that many need to experience greater levels of restoration. The research has also shown that boundaries, both physical and mental, have so far been the only successful ways to disconnect from this productive mindset. Furthermore, this study has shown that in order to prioritise rest, successful rest which is truly restorative must be achieved, allowing the benefits of rest to be fully understood. To accomplish this, there should be more research into, and awareness of, the seven types of rest, as this study has shown that implementing them can transform relationships with rest and allow restoration to be appreciated and prioritised more. This study has also identified that spatial design has a significant impact on whether rest is prioritised. This is particularly dependent on whether there are environments where the rest-deprived can experience a disconnect from work.

The second major finding was in relation to designing spaces with the purpose of restoration. Looking at the existing design of retreats and conducting research into whether spaces can be objectively restful has identified that there are number of design features which can create an environment which is ideal for restoration. These were the inclusion of organic shapes, minimalistic furnishing, and soft lighting. It was also shown to be successful to create a strong connection to nature through biophilic design. Furthermore, it was highlighted that the surrounding environment is of equal importance when encouraging restorative outcomes. The principles of Attention Restoration Theory have aided recognition that strong views of a natural environment have powerful effects on creating a mindset shift. Creating a disconnect from the architecture associated with productive spaces is also important.

Limitations and Recommendations for Further Study

The generalisability of these results is subject to certain limitations. Across the three primary research methods used, the survey scope was small. Although this still provided useful results, the small sample size will have led to a limited range of viewpoints. The research methods could be used again in the future with a larger and more diverse sample size, in order to achieve greater results and allow for a more compelling analysis. The findings from this study suggest that designing for rest is a fruitful area for further study. A natural progression would be to analyse experiences of rest over a longer time period and after a duration actively spent in various environments. It would be interesting to investigate if the same powerful outcomes achieved through the principles of Attention Restoration Theory can be achieved with other design methods. The research findings expose a key opportunity for a space to be designed around the purpose of experiencing and learning about the seven types of rest. This will be tackled in the researcher's final year major project, in order to put the findings from this study into practice.

Contributions to Knowledge

Prior to this study, primary experiences of the seven types of rest had not been analysed. Despite limitations in survey size, this research paper has identified how these types of rest are currently experienced and the overall impact that they have on levels of restoration.

This research paper aimed to provide new knowledge on whether design can initiate restoration. The findings have concluded that spatial design has a powerful influence on encouraging or hindering restoration, and that the relationship between spatial design and restoration can be used as a tool to encourage members of the modern working society to prioritise rest. These findings should be used as a guide for designers of restorative spaces, and also to allow those who are experiencing overwork to understand how they can experience rest in their everyday environment. It has been shown that the modern working world currently under-prioritises rest, however a number of small design changes can drastically alter this and allow for society to fully appreciate the true power of restoration.

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Figure 15: Dezeen (2021) Nook Solo booth by David O'Coimin for Nook. Dezeen, Online. Available from: https://www.dezeen.com/2021/04/22/nook-solo-booth-david-ocoimin-dezeen-showroom/ [Accessed Oct 2021]

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APPENDICES

Appendix A: Guerilla Research: Survey responses

The data below shows responses to an online survey from October 28th 2021.

1. How much rest would you say you have had this week? (1-no rest, 10- fully rested)

2. There are 7 types of rest which we need to be fully restored. These are: physical, mental, sensory, creative, spiritual, emotional and social. Knowing this, how would you rate your rest now?

QUESTION ONE & TWO: REST RATING

3. Which type(s) of rest do you feel you prioritise the most?

4/ Which type(s) of rest do you feel you prioritise the least?

QUESTION THREE & FOUR: PRIORITISATION OF TYPES OF REST
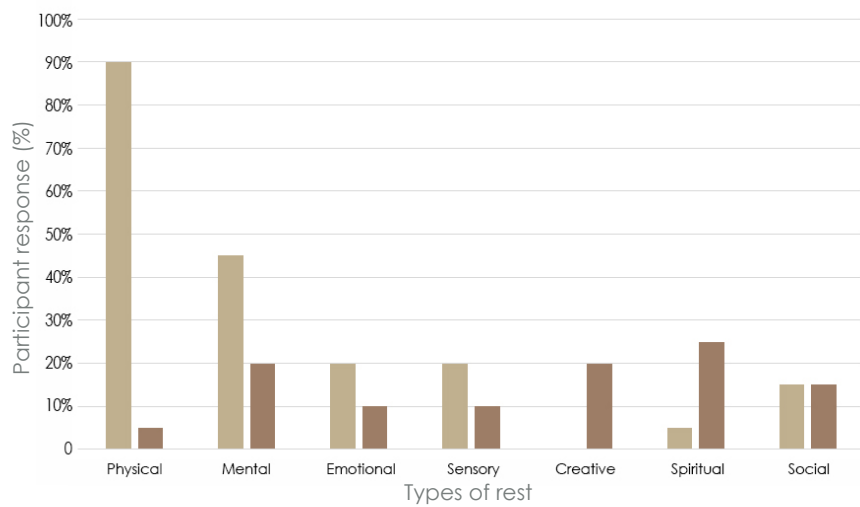
5. How do you disconnect from work/study?

QUESTION FIVE: DISCONNECT FROM WORK/STUDY
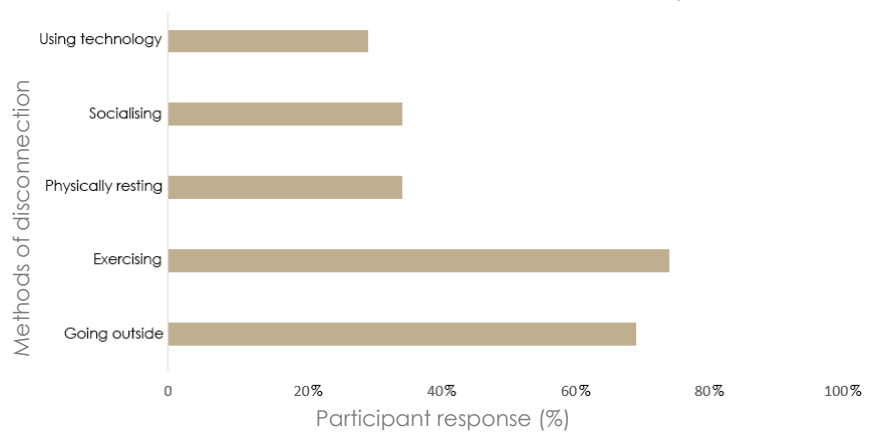
6. Which do you prioritise more, productivity or rest?

7. Do you feel more stressed when you have NOT been outside/ been in nature?

QUESTION SIX: PRODUCTIVITY V.S REST

QUESTION SEVEN: STRESS AND NATURE
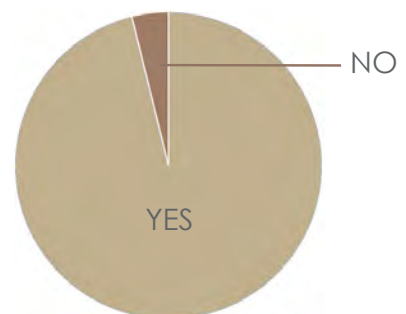
Appendix B Part i: The Rest Probe: Consent

All participants who completed The Rest Probe filled out this consent form before completion, when the research tasks were explained to them. By signing this form and returning a completed probe kit, consent was given for the data to be used in this study.

Edinburgh Napier University Research Consent Form
Spatial Design to Encourage Restoration

Edinburgh Napier University requires that all persons who participate in research studies give their written consent to do so. Please read the following and sign it if you agree with what it says.

1. "I freely and voluntarily consent to be a participant in the research project on the topic of Spatial Design to Encourage Restoration to be conducted by Jennifer MacDonald, who is an undergraduate student at Edinburgh Napier University."

2. "The broad goal of this research study is to explore to what extent spatial design can encourage restoration and how this relationship can be utilised to allow us to view rest as a priority. Specifically, I have been asked to complete a Cultural Probe Kit on this topic, which should take no longer than 20 minutes per day, over one week, to complete."

3. "I have been told that my responses will be anonymised. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher."

4. "I also understand that if at any time during the completion of the Cultural Probe Kit, I feel unable or unwilling to continue, I am free to leave. That is, my participation in this study is completely voluntary, and I may withdraw from it without negative consequences. However, after data has been anonymised or after publication of results it will not be possible for my data to be removed as it would be untraceable at this point."

5. "In addition, should I not wish to answer any particular question or questions, I am free to decline."

6. "I have been given the opportunity to ask questions regarding the Cultural Probe Kit and my questions have been answered to my satisfaction."

7. "I have read and understand the above and consent to participate in this study. My signature is not a waiver of any legal rights. Furthermore, I understand that I will be able to keep a copy of the informed consent form for my records."

_____   _____

Participant's Signature   Date

"I have explained and defined in detail the research procedure in which the respondent has consented to participate. Furthermore, I will retain one copy of the informed consent form for my records."

_____   _____

Researcher's Signature   Date

Appendix B Part ii: The Rest Probe: Tasks before completion

The images below show the design of the probe kit tasks which were given to participants on Monday 8th November 2021.

REST RATINGS

Rate from 1-5 how you feel about the following statements with 1 = do not agree and 5 = fully agree. Do this before you start the rest probe and after you have finished.

Before Rest Probe:

I prioritise rest

(1) (2) (3) (4) (5)

I appreciate the 7 types of rest

(1) (2) (3) (4) (5)

I am regularly fully rested

(1) (2) (3) (4) (5)

After Rest Probe:

I prioritise rest

(1) (2) (3) (4) (5)

I appreciate the 7 types of rest

(1) (2) (3) (4) (5)

I am regularly fully rested

(1) (2) (3) (4) (5)

REST DIARY

Write a few sentences about your experience of rest each day. Make sure to include the seven types of rest.

Day One:

Day Two:

Day Three:

REST DURATION

Log how long you feel you have experienced each of the seven types of rest, every day for at least six days.

	MON	TUE	WED	THU	FRI	SAT	SUN
Physical							
Mental							
Sensory							
Emotional							
Spiritual							
Social							
Creative							

REST DIARY

Day Four:

Day Five:

Day Six:

REST LOCATIONS

Take a photo of the space you find most productive and the space you find most restful, outside of your home. Write below why you feel this way.

Most Productive:	*Most Restful:*

REST RESTRAINTS

Write down what you feel stops you from achieving each of the seven types of rest.

Physical:	*Sensory:*
Mental:	*Spiritual:*
Emotional:	*Creative:*
Social:	

REST MAP

Draw a rough floor plan of your house and label each room. Using coloured pens/pencils, fill in the key so that you have a different colour for each type of rest. Colour in the floor plan to document where you experience each type of rest.

KEY

Physical

Mental

Sensory

Emotional

Spiritual

Social

Creative

Appendix B Part iii: The Rest Probe: Participant 1, Full-time student

The images below show the completed cultural probe kit from participant 1.

REST DIARY

Write a few sentences about your experience of rest each day. Make sure to include the seven types of rest.

Day One: Physical rest was not met due to broken sleep. Mental rest was obtained by a walk. Similar to emotional through music, creative through uni project. Social after communicating with friends.
Day Two: Physical rest was met today, mental from watching TV however, this hindered sensory rest. Spiritual rest was also met today through a meditation podcast.
Day Three: Physical rest was moderate, about 6 hours gained. Social rest met today after meeting friends, emotion rest met after listening to music.

REST LOCATIONS

Take a photo of the space you find most productive and the space you find most restful, outside of your home. Write below why you feel this way. If you cannot take a photo, write a description or draw the space.

Most Productive: I feel like the gym is the most productive space because
• exercise is a good way to get rid of stress
• can still think creatively
• space that focuses on one + types of rest.

Most Restful: I feel like outdoors/nature walks is the most restful space because
• away from uni/work etc
• exercise gets rid of stress
• fresh air/nature helps feel calm/relaxed

REST DURATION

Log how long you feel you have experienced each of the seven types of rest, every day for at least six days.

	MON	TUE	WED	THU	FRI	SAT	SUN
Physical	6hrs	6hrs	6hrs	5hrs	6hrs	7hrs	7hrs
Mental	1hr	6hrs	3hrs	6hrs	3hrs	6hrs	3hrs
Sensory	Not ever away from technology/screens/loud noises etc						
Emotional	2hrs	2hrs	2hrs	2hrs	2hrs	2hrs	2hrs
Spiritual	1hr	1hr	1hr	1hr	1hr	1hr	1hr
Social	3hrs	6hrs	3hrs	3hrs	3hrs	3hrs	
Creative	3hrs	6hrs	6hrs	3hrs	3hrs	3hrs	3hrs

REST DIARY

Day Four: Physical rest was fulfilled, about 10 hours gained. Mental rest gained through listening to music. Social rest was met through socialising with friends.
Day Five: Physical rest was fulfilled, about 10 hours. Mental rest gained through listening to music. Spiritual rest wasn't met.

Day Six: Physical rest was not met due to broken sleep, emotional rest was gained through TV and listening to music.

REST RATINGS

Rate from 1-5 how you feel about the following statements with 1 = do not agree and 5 = fully agree. Do this before you start the rest probe and after you have finished.

Before Rest Probe:
I prioritise rest — 2
I appreciate the 7 types of rest — 3
I am regularly fully rested — 1

After Rest Probe:
I prioritise rest — 2
I appreciate the 7 types of rest — 4
I am regularly fully rested — 1

REST RESTRAINTS

Write down what stops you from achieving each of the seven types of rest.

Physical: Struggling to switch off / never have time to rest.
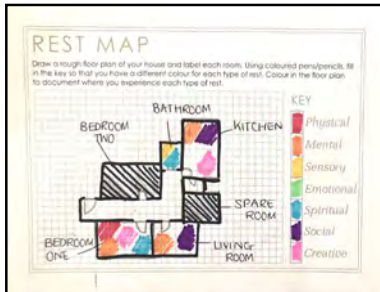Mental: Not having somewhere where work doesn't take place.
Emotional: Not having time to take part in activities which allow this.
Social: Having too heavy of a workload that it's hard to have a social life.

Sensory: Living in a city where you can never be completely in nature.
Spiritual: Not having enough "spiritual" aspects in day to day life.
Creative: Having a none uni related activity which has a creative output.

REST MAP

Draw a rough floor plan of your house and label each room. Using coloured pens/pencils, fill in the key so that you have a different colour for each type of rest. Colour in the floor plan to document where you experience each type of rest.

BEDROOM TWO, BATHROOM, KITCHEN, SPARE ROOM, BEDROOM ONE, LIVING ROOM

KEY: Physical, Mental, Sensory, Emotional, Spiritual, Social, Creative

Appendix B Part iv: The Rest Probe: Participant 3, Part-time employee

The images below show the completed cultural probe kit from participant 2.

REST DIARY

Write a few sentences about your experience of rest each day. Make sure to include the seven types of rest.

Day One: Refreshed from sleep. Was able to rest after work (sensory/social/emotional)

Day Two: Mostly same as yesterday. Physical rest from sleeping. Had sensory rest after work. Cooked meal from scratch today so had creative rest.
Day Three: Day off from work. More physical & creative rest. Also more social rest, both time alone & socialising w/ family.

REST LOCATIONS

Take a photo of the space you find most productive and the space you find most restful. Write below why you feel this way. If you cannot take a photo, write a description or draw the space.

Most Productive: At work. Cafe environment. Focused on tasks all day.

Most Restful: Shopping - could be food shop or clothes shop. Enjoy browsing & switching off from work.

REST DURATION

Log how long you feel you have experienced each of the seven types of rest, every day for at least six days.

	MON	TUE	WED	THU	FRI	SAT	SUN
Physical	7hr	7hr	8hr	7hr	8hr	8hr	8hr
Mental	30min	30min	6hr	30min	1hr	30min	6hr
Sensory	2hr	2hr	4hr	2hr	2hr	3hr	4hr
Emotional	30min	30min	30min	0	30min	0	1hr
Spiritual	0	0	0	0	0	0	0
Social	30min	30min	2hr	30min	1hr	1hr	2hr
Creative	0	30min	1hr	1hr	1hr	30min	2hr

REST DIARY

Day Four: Had less physical rest than yesterday but still refreshed. Was able to cook more and have more creative rest.

Day Five: Mostly the same but had more social rest interacting with family.

Day Six: Had more time away from screens today and so more sensory rest.

REST RATINGS

Rate from 1-5 how you feel about the following statements with 1 = do not agree and 5 = fully agree. Do this before you start the rest probe and after you have finished.

Before Rest Probe:
I prioritise rest — 4
I appreciate the 7 types of rest — 1
I am regularly fully rested — 2

After Rest Probe:
I prioritise rest — 4
I appreciate the 7 types of rest — 4
I am regularly fully rested — 4

REST RESTRAINTS

Write down what stops you from achieving each of the seven types of rest.

Physical: Busy / stressed / not well
Mental: If work needs to be done - can see work when taking break
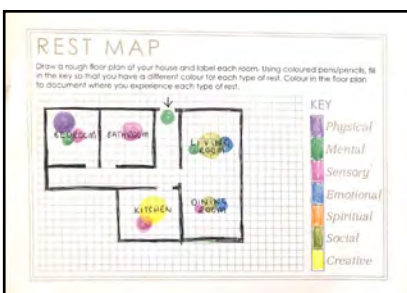Emotional: No way to express to someone, don't journal etc
Social: Time at work dealing w/ customers etc

Sensory: Phone not a priority & do not use screens at work but use TV & music as relief in rest time.
Spiritual: Not a spiritual person.
Creative: Creativity through cooking, restricted if busy / have time restraints.

REST MAP

Draw a rough floor plan of your house and label each room. Using coloured pens/pencils, fill in the key so that you have a different colour for each type of rest. Colour in the floor plan to document where you experience each type of rest.

BEDROOM, BATHROOM, LIVING ROOM, KITCHEN, DINING ROOM

KEY: Physical, Mental, Sensory, Emotional, Spiritual, Social, Creative

Appendix B Part v: The Rest Probe: Participant 3, Full-time employee

The images below show the completed cultural probe kit from participant 3.

Appendix B Part vi: The Rest Probe: Participant 4, retired from work

The images below show the completed cultural probe kit from participant 4.

Appendix C Part i: Photo Elicitation Survey: Consent

All participants who completed the Photo Elicitation Survey were required to read and agree to the consent information displayed below before completing the survey.

Edinburgh Napier University requires that all persons who participate in research studies give their consent to do so.

Please read the following:

1. You are invited to be a participant in the research project on the topic of Spatial Design to Encourage Restoration to be conducted by Jennifer MacDonald, who is an undergraduate student at Edinburgh Napier University.

2. The broad goal of this research study is to identify to what extent spatial design can encourage restoration, and how this relationship can incentivise viewing rest as a priority. Specifically, you are asked to complete a Photo Elicitation Survey on this topic, which should take no longer than 15 minutes to complete.

3. Your responses will be anonymous. Your name will not be linked with the research materials, and you will not be identified or identifiable in any report subsequently produced by the researcher.

4. If at any time during the completion of the Photo Elicitation Survey, you feel unable or unwilling to continue, you are free to leave. That is, your participation in this study is completely voluntary, and you may withdraw from it without negative consequences. However, after data has been anonymised or after publication of results it will not be possible for your data to be removed as it would be untraceable at this point.

5. In addition, should you not wish to answer any particular question or questions, you am free to decline.

6. There are no foreseeable risks involved in participating in this study other than those encountered in day-to-day life.

If you have any questions at any time about the study or the procedures, you may contact my research supervisor, Dr Paul Thompson, via email at p.thompson2napier.ac.uk.

You may print a copy of this consent form for your records.

Clicking the "Agree" button indicates that:

- **You have read the above information**
- **You voluntarily agree to participate**
- **You are 18 years of age or older**
- **You consent to your responses being included in this research study**

Please select your choice below.

○ Agree
○ Disagree

→

Powered by Qualtrics ↗

Appendix C Part ii: Photo Elicitation Survey: Question format

Shown below is an example of the question slides shown for each image.

Would you describe the space pictured below as productive or restful?

○ Productive
○ Restful

Please describe why you made your selection. Where possible reference the features of the space that informed your decision.

→

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The responses to the Photo Elicitation Survey are presented below.

Restful 15/30

Responses without comments:
Rest: 8
Productivity: 6

RESPONSE	COMMENTS
Productivity	The furniture seems quite frigid and uncomfortable, and so doesn't seem to be a restful area (despite the greenery creating a nice illusion of restfulness and "zen"). As well as this the way the stools are all positioned and the electronics on the tables point towards it being more productive.
Rest	Seems like an area to relax/meditate with the strong presence of outdoors inside.
Rest	Colours green, plants and everything is organised
Productivity	large glass panels that make the space seem "open" would personally encourage productivity
Rest	The greenery makes me feel relaxed, like spending time with nature is restorative. Seating choices lessen structure too
Productivity	The set up of the room- particularly the desk would encourage me to revise. Plants are a nice touch though to make it feel more peaceful and open.
Rest	Looks very relaxing
Productivity	Presence of tables and gadgets
Rest	beautiful tranquil architecture
Rest	The leave feature in the middle is calming
Productivity	Keeps you open-minded to new ideas while set up in a good working environment
Productivity	Tables, light
Rest	The color tone is very calm and the green plants look good for resting
Productivity	Nice space for work or an event
Productivity	Furniture is quite rigid suggesting productivity but I feel like the plants may be distracting
Productivity	The clean space would make me feel focused and calm. The work space and open floor plan would be a great modern work environment.

Restful 16/30

Responses without comments:
Rest: 11
Productivity: 6

RESPONSE	COMMENTS
Rest	Although there is a laptop on the desk, the interior seems a lot more relaxed in this photograph. This could be due to the colour scheme, the white is more peaceful and the shape of the chairs make it seem less formal. As well as this, the unique wooden roof and window, which allows bright light to come through and provides a nice view of nature, create a more relaxed and restful atmosphere.
Productivity	Clean, very little to no form of distractions.
Rest	A lot of natural light, nature colour panel, a lot of free space
Productivity	the windows and light create a sense of openness, which would encourage productivity
Rest	The openness and natural material and plants are relaxing
Productivity	Looks like a good place to bash out an essay. Chairs are the ones that aren't too comfy that you'll fall asleep but are comfy enough to sit for ages and get lots of work done.
Productivity	Presence of a table and a laptop
Productivity	straight lines make it seem like a good work space, very focused
Productivity	Good light but defined study space
Productivity	Space, materials
Rest	Wood looks good for rest
Rest	Soothing environment overall
Productivity	I think the floor/ceiling window and clean space would help me feel productive. The natural light too would make me want to work in that space.

Restful 16/30

Responses without comments:
Rest: 8
Productivity: 7

RESPONSE	COMMENTS
Rest	It seems like quite a relaxed atmosphere, with the inclusion of the greenery and the nice interiors, and the table in the middle also creates a more open and inclusive area where people can relax and have a break.
Rest	Seems like a space to socialise and rest
Productivity	I would say both. The colours are restful but its quite busy so that is why
Rest	Open space that lacks clear divisions between areas of space/rooms would be restful and relaxing
Productivity	This one is more difficult to choose but the brightness is energising. Not a stressful productive space but a chilled one
Productivity	Looks like a really nice place for a work meeting. Similar to a coffee shop but more of a business vibe with the wooden chairs and massive table
Rest	Seem like a good place to just hang out
Productivity	nice mixture of lines and nature, with good work spaces for productivity
Rest	Flowing contours illicit calming emotions
Rest	The curves make it feel restful
Productivity	Busy, so does not feel restful
Productivity	White tones make the space look like an office
Productivity	Looks equally good
Rest	Organic shapes are soothing
Rest	The space is cosy and the curves are really relaxing to look at. The natural materials are comforting too.

Productive 20/30

Responses without comments:
Rest: 7
Productivity: 10

RESPONSE	COMMENTS
Rest	Looks like a waiting room of break room of some sort. Doesn't seem confined enough to be used for meetings, as it looks like it is in an area many people can pass through openly.
Productivity	Good use of natural light reinforcing focus.
Productivity	It's an amazing office space, many places to sit down and be productive
Productivity	natural lighting
Productivity	Very bright, slightly structured space
Productivity	Very nice. The couches look comfy but not sleepable which is definitely productive and office friendly. Good amount of table to do meetings- lots of natural light and plants which is calming but also productive.
Rest	Limited space at the table, looks like a common room or a meal space
Productivity	great light and plants and space for work
Rest	Comfortable seating, light
Productivity	Bright lighting and modern decoration make the space look productive
Productivity	Positive space
Productivity	The use of large windows allowing for large quantities of light, directional s be spotlights, and Natural lush elements creates an image of you having to do something in the space
Productivity	Traditional work environment

RESPONSE	COMMENTS
Rest	Big window with good view of the outdoors, the dark lighting and the soft and seemingly comfortable furniture all lead to this being more restful.
Productivity	Natural light, an area to relax and get to work.
Rest	Natural light, peaceful, nature plants outside
Productivity	openness and light encourages productivity
Rest	As with previous restful spaces, the informal set up and greenery is relaxing
Rest	Love the plants, instantly calming and loads of natural light is a huge bonus. The little stool on the left looks very uncomfortable but the chair and stool looks really nice, ideal for reading or journaling and having a cup of coffee in the morning
Rest	Relaxing view through the window, comfortable seating
Rest	relaxing views and serene looking space
Productivity	This is maybe a mix but more productive with the desk and chair
Productivity	Minimal and easy to concentrate
Rest	Feet rest, lighting
Rest	The space looks peaceful
Rest	Relaxing place
Rest	Open space with a view of the woods creates a comforting and restful atmosphere
Rest	Views of forest are relaxing
Rest	Lots of green and empty space
Rest	The whole space is really chilled, and the comfy chair and natural light just looks restful.

Restful 22/30

Responses without comments:
Rest: 9
Productivity: 5

RESPONSE	COMMENTS
Productivity	Seems like an open-spaced office environment where everyone works beside each other. The "cozy" atmosphere seems almost artificial due to the way the furniture is placed and the way the plants are almost used as props in the middle of the desks
Productivity	Bright colours, white lights
Productivity	large windows and plenty of natural light
Productivity	Lots of bright light and a mix of structured and more relaxed seating - it feels like a collaborative and lively productive environment
Productivity	Nice office space. Lots of plants and natural light.
Productivity	Front space is productive, back space is more restful. Outside views suggest work environment
Productivity	good teamworking space and productive environment
Productivity	A lot of space at the tables

Productive 27/30

Responses without comments:
Rest: 3
Productivity: 19
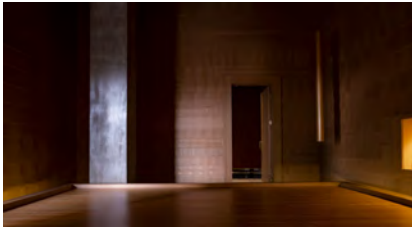
Restful 19/30

Responses without comments:
Rest: 11
Productivity: 5

RESPONSE	COMMENTS
Productivity	this image reminds me of the interiors you would see in a library or big study hall. This includes the wooden interior, high ceilings and the warm lighting
Rest	Closed off, strikes me as a space to sleep
Productivity	I'm afraid of darkness so I don't rest when I'm alone and it's dark.
Rest	minimal lighting
Productivity	Feels like a very formal space, not sure if I can explain why.
Productivity	This room is eerie. Dark walls, no furniture, its kind of intimidating.
Productivity	No seating area, not very welcoming
Rest	dark and closed, would feel claustrophobic
Rest	Doesn't seem to be stimulating enough for productivity
Productivity	Would have chosen other as it doesnt feel as either choice
Rest	Darkness, lack of furniture
Rest	The tone is too dark and does not look suitable for productive place
Rest	Less light creates a sense of rest, darker atmosphere is often associated with the evening which is associated again with rest/winding down
Rest	Meditative space

Restful 15/30

Responses without comments:
Rest: 6
Productivity: 9

RESPONSE	COMMENTS
Productivity	I feel like despite initially giving the illusion of it being restful, this is meant to be more productive. The furniture doesn't seem comfortable (despite the cushion), the room is small and almost claustrophobic, despite the big windows. It doesn't seem like somewhere you could be comfortable in, but i could perhaps sit and get work done on a laptop etc.
Rest	Closed off, but no natural light entering room. A good place to watch TV/nap, but would struggle to remain focused
Rest	Both again, every person test with different colours the yellow is quite bright
Rest	the enclosed nature of the room encourages calm and rest
Productivity	Very bright and colourful but still structured so it feels productive
Rest	yellow= happiness. Positive vibes with this one would be happy to work in this office like the neutral tones of the room as it's more relaxing. TV on the wall immediately relaxing and chair looks very comfortable
Rest	Relaxed seating and no table
Rest	looks comfy and relaxing with TV and soft furnishings
Productivity	Seems ergonomic which looks productive
Rest	Welcoming
Rest	Lack of table, comfortable materials
Productivity	the small space looks more productive
Productivity	For me, these spaces seem like productive zones as each room appears to have a certain task associated with it
Productivity	Enclosed environment means no distractions
Rest	The space looks too comfortable, I don't think I could focus on work when the colours are so pretty! The lighting too is quite dim so wouldn't help with focus

Productive 17/30

Responses without comments:
Rest: 10
Productivity: 10

RESPONSE	COMMENTS
Rest	Big couches once again, nice big windows and the books also make it seem like a cozy room you can wind down in.
Rest	Warm colours, a lot of books
Productivity	plenty of lighting from natural and artificial sources
Rest	Warm lighting and lack of structured seating makes it feel relaxed
Rest	This is beautiful. The books automatically settle me and all of the furniture is so comfy looking and just puts me at ease. The colour scheme as well is stunning earth tones and warm lighting I would never leave this room.
Productivity	Place to search for knowledge
Rest	relaxing
Productivity	Calming effect of books but ultimately productive
Rest	Lack of table, comfortable seating
Rest	Calming colours and lighting tones

Productive 29/30

Responses without comments:
Rest: 1
Productivity: 21

RESPONSE	COMMENTS
Productivity	The big desk in the middle with office chairs on one side and stools on the other makes this appear to be some sort of workspace or office. As well as the bookshelves
Productivity	tables and open space from large windows encourage productivity
Productivity	Very structured layout of seating and furniture
Productivity	Exposed brick and dark wood is giving me productive vibes. Definitely an architect. Like the mixed benches and stool though that's different.
Productivity	Pleasant design elements that would contribute to productivity (large table, functional tools, books)
Productivity	ideal for focusing
Productivity	Table, hard seating
Productivity	No views outside only bricks

Productive 21/30

Responses without comments:
Rest: 7
Productivity: 10

RESPONSE	COMMENTS
Productive	Tiny rooms, very claustrophobic. The bright red colour makes it seem more lovely and productive as well. This isn't the sort of room anyone could rest in.
Rest	Neither, far too enclosed to rest, but not a good area to focus.
Productive	Red colour makes people angry
Rest	less natural light, no windows
Productive	Small uniform spaces feels more structured for getting things done
Productive	This is where you go when you are three weeks behind in uni work and need to get everything done. No one would disturb me in this room so I'd get loads of work done, definitely an exam season must. The red is pretty jarring though, maybe a beige would be nicer and not as intense
Productive	Private and small space for concentration
Productive	no distraction and very efficient and good place to focus
Productive	Doesn't seem calm
Productive	Functional, difficult to imagine restful
Productive	Small space looks more productive
Productive	Pods seem like designated zones to do a task, or an activity, something you'd have to book, like a quiet area in a library
Productive	Suggest an extreme level of focus due to isolated environment

Restful 26/30

Responses without comments:
Rest: 16
Productivity: 2

RESPONSE	COMMENTS
Rest	Nicely lit, loads of cushions and cozy seats you can lay on, decorated nicely and seems more open.
Rest	The atmosphere is restful, warm light
Productivity	space for collaboration and lower and above lighting
Rest	Warm lighting and open low seating is more relaxed
Rest	Lovely lights very warm and comfy couch. Really nice homey atmosphere in here 10/10
Rest	Comfortable seating, soothing lighting conditions
Rest	soft furnishing and dark lighting would make you feel comfortable and tired
Productivity	Looks like a cafe which I find productive
Rest	Lighting, comfortable style seating
Rest	peaceful tone
Rest	It reminds of a reception area just before going into a hotel, as an area of rest
Rest	Definitely not a work environment but design features are quite distracting/ distressing to the eye

Restful 15/30

Responses without comments:
Rest: 7
Productivity: 10

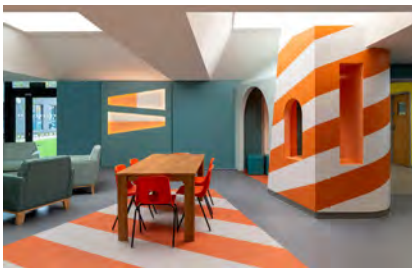| RESPONSE	COMMENTS
Rest	Lots of tables with chairs facing each other. Seems like a nice social atmosphere. Brightly lit as well but the muted colours make it feel more casual
Rest	Based on the furniture and ambiance of the room seems more like a space to socialise.
Rest	Open space, warm light, neutral colours
Rest	the lack of nature lighting would make me feel more cozy and restful
Productivity	Very bright and collaborative space. I think the brightness is what makes it feel productive
Productivity	Although the warm lights are a nice touch to make it more cozy, I'd say this one's a bit more cold (grey marble is quite harsh) and means serious business
Rest	Looking at the tables it seems more like a calm restaurant
Productivity	interesting lines, good lighting and nice looking work spaces that would make you feel productive
Rest	Shapes and light is calming
Productivity	Tables, light
Productivity	Good space with lighting
Rest	Open ended curved features throughout the room create a comforting atmosphere, like the room feels like it's giving you a hug
Rest	Lighting suggests social environment

Restful 21/30

Responses without comments:
Rest: 11
Productivity: 6

RESPONSE	COMMENTS
Productivity	cushiony and semi comfortable seating, however it reminds me of some sort of room used for therapy or counselling? Maybe due to the white furniture and the way the seats are all positioned facing each other.
Rest	It looks a bit too white like in hospital
Productivity	white walls and furniture make the space feel more open and allow for more productivity
Productivity	Again, main reason for me is that it's very bright and a "clean" space
Rest	The wooden Chair looks interesting but not to sit on, so that's not inviting to stay long and get work done. Couch again more comfort over getting work done. This is giving therapy session set up
Rest	Very organized space, comfortable seating in which one could lay down
Rest	comfy, good for casual meetings
Rest	Seems like a therapy place which I would find restful
Rest	calming tones
Rest	Lack of table, comfortable seating
Rest	Nice relaxing
Rest	The use of a minimal colour palette creates a sense of comfort, the choice of furniture also aids this imagery
Rest	Peaceful design

Productive 22/30

Responses without comments:
Rest: 4
Productivity: 9

RESPONSE	COMMENTS
Productivity	The bright colours create some sort of urgency in my opinion. As well as this, the shapes of the chairs and the high desk feel a bit like school desks and therefore it seems like more of a productive space to work in rather than to have a break.
Rest	Too much going in relation to the furniture/wallpaper for it be a space to get focused
Productivity	Bright colours, bold patterns
Productivity	the table with chairs would encourage productivity and collaboration
Productivity	Lots of bright colours and patterns make the space feel more energetic
Productivity	Bright jarring colours would indicate it would a meeting but a really fun one, maybe something you'd see at google. Middle table looks like a meeting table but at least there are couches to make it a bit more casual
Productivity	Looks very creative
Rest	Good place to rest and be inspired (original decoration)
Productivity	good lines and creative, keeping you alert
Productivity	Seems more rigid rather than restful
Productivity	The color contrast makes it feel like you need to keep busy
Productivity	Lots of colours and patterns, do does not feel restful
Productivity	Color contrast stimulates vision and is more productive than restful
Productivity	Good for concentration
Productivity	The use of bright and dynamic colours introduce elements of visual movement
Rest	Not entirely relaxing but feels like a space to switch off from outside world
Rest	The bold colours would give me energy to work, and the featured floor under the table would put me in a focused and driven mindset.

Appendix D Part i: Co-Design Workshop: Consent

All participants who completed the co-design workshop filled out this consent form before completion, when the research tasks were explained to them. By signing this form, consent was given for the data to be used in this study.

Edinburgh Napier University Research Consent Form
Spatial Design to Encourage Restoration

Edinburgh Napier University requires that all persons who participate in research studies give their written consent to do so. Please read the following and sign it if you agree with what it says.

1. "I freely and voluntarily consent to be a participant in the research project on the topic of Spatial Design to Encourage Restoration to be conducted by Jennifer MacDonald, who is an undergraduate student at Edinburgh Napier University."

2. "The broad goal of this research study is to explore to what extent spatial design can encourage restoration and how this relationship can be utilised to allow us to view rest as a priority. Specifically, I have been asked to complete a Co-Design Group Task on this topic, which should take no longer than 30 minutes to complete."

3. "I have been told that my responses will be anonymised. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher."

4. "I also understand that if at any time during the completion of the Co-Design Group Task, I feel unable or unwilling to continue, I am free to leave. That is, my participation in this study is completely voluntary, and I may withdraw from it without negative consequences. However, after data has been anonymised or after publication of results it will not be possible for my data to be removed as it would be untraceable at this point."

5. "In addition, should I not wish to answer any particular question or questions, I am free to decline."

6. "I have been given the opportunity to ask questions regarding the Co-Design Group Task and my questions have been answered to my satisfaction."

7. "I have read and understand the above and consent to participate in this study. My signature is not a waiver of any legal rights. Furthermore, I understand that I will be able to keep a copy of the informed consent form for my records."

_____   _____

Participant's Signature   Date

"I have explained and defined in detail the research procedure in which the respondent has consented to participate. Furthermore, I will retain one copy of the informed consent form for my records."

_____   _____

Researcher's Signature   Date

The images below show the outputs from the Co-Design Workshop.

- Large window so I can see out
- Tree because we need them for oxygen
- Sheep because countryside is relaxing and quiet
- The sun because it makes everything brighter.

- Bookcase & reading area as most relaxing activity
- Rug to add comfort
- Bed for physical rest
- Plants on walls & ceiling to add more calming nature.
- Seats look to outside views
- LED lights for mood lighting
- Small lamps for transition lighting
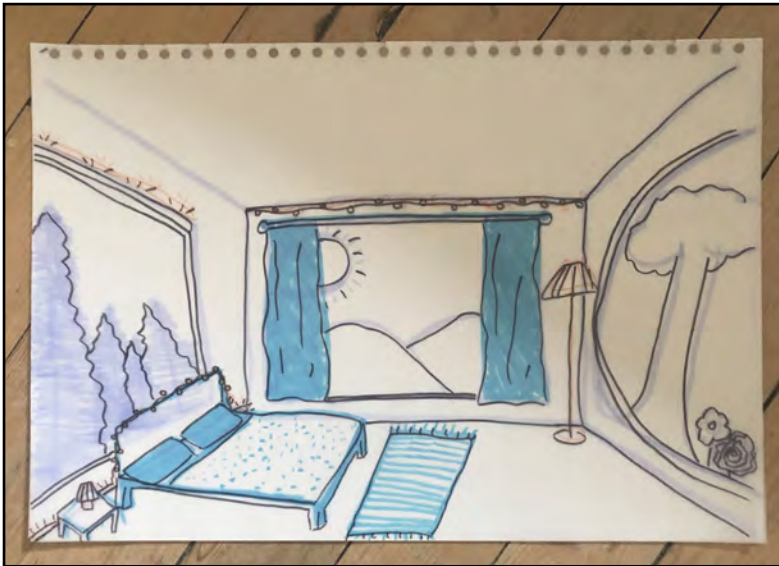
- Large Windows, for lot's of light
- Forrest, because there's lots to look at so it's easy to focus on
- Sun, for brightness & warmth
- hills, for aesthetic
- Flowers, for aesthetic
- bed so I can sleep & relax
- rug to keep my feet warm
- curtains to block light out when I sleep
- Small light sources such as fairy lights & strip LEDs, more relaxing than big lights

- Forest setting at night
- Large windows
- Nature encourages rest / is relaxing
- Bean Bags for comfy sitting
- tables to rest things on
- Sofa to sit or lie down
- Big light to make room brighter
- smaller lights for a nice ambience
- carpet to make room more exciting

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DESIGN RESEARCH PORTFOLIO BOX DESIGN

Jennifer MacDonald, 40342865
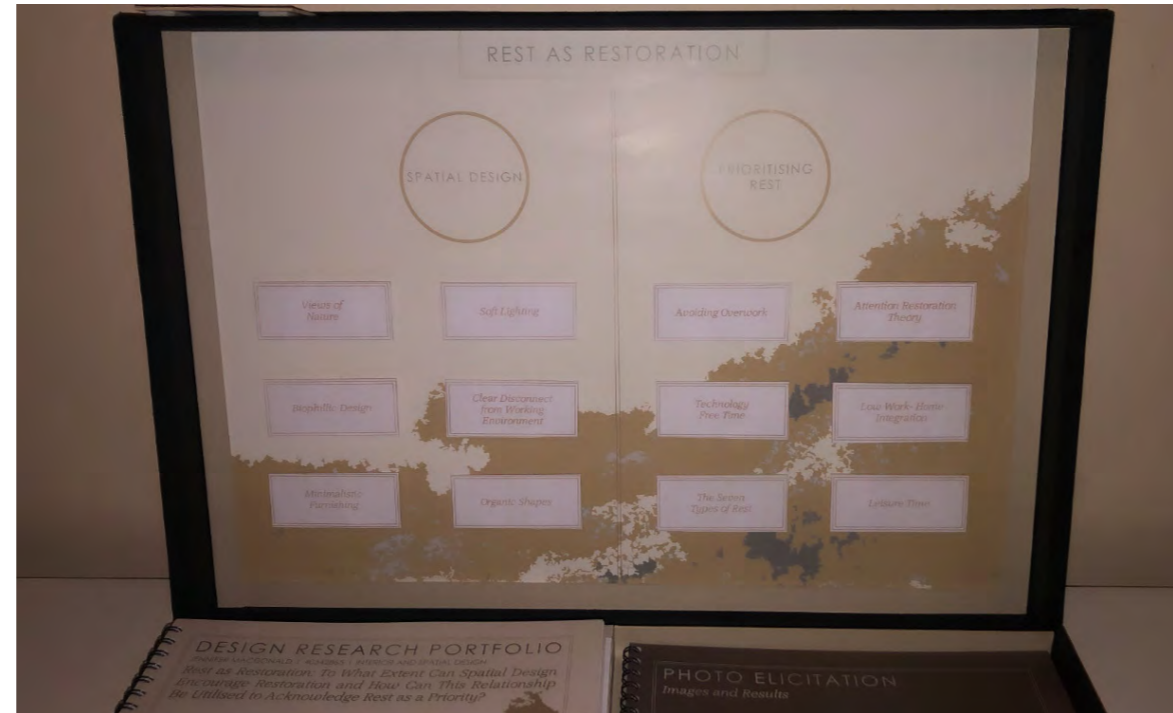
1- Design Research Portfolio

2- Photo Elicitation Images and Results

3- The Rest Probe