

Taking care of the researcher – a nature and art-related activity retreat: Sharing natural space puts humanity into perspective

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Abstract.

BACKGROUND: There has been an insufficient amount of studies that examine how academic working life of researchers can be supported.

OBJECTIVE: We examine the use of a nature and art-related activity retreat designed for researchers. The purpose was to evaluate if and how researchers perceived different workshop experiences set in nature as meaningful and important with regards to their self-care.

METHODS: A mixed group of six researchers from Sweden, Finland, and the United States met for a three-day retreat consisting of self-selected nature and art-related activities. From data constituted from participant reflections, a focus group interview, a three months follow-up questionnaire, and an analysis of the workshops undertaken, three major themes were identified: “Sharing and connection”, “Embodiment” and “Nature”.

RESULTS: Analysis of the workshop-style exercises did not show significant variance in reported meaningfulness and usefulness related to the activity itself. However, there was a strong correlation between perceived value and shared experience where the sharing of the natural space was felt to put humanity into perspective.

CONCLUSION: Organizing and systematizing health preventive retreats for researchers in academia may be an important part of the sustainable academic community in which the researcher needs to be better taken care of in a more embodied way. Although this study was conducted prior to COVID-19, such retreats and potentially also online versions, could be useful for managing the pandemic and afterwards, in our new “normal”.

Keywords: Academic stress, embodiment, nature retreat, perception

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1. Introduction

Research is an essential mode of discovery across all knowledge domains. As a distinct work product, research is seen as contributing to progress toward the common good. Across all experience levels, research activity represents a form of communication across generations, including research-led teaching and training which stimulates further creativity. People engaged in research often devote a high proportion of their lives to the production of knowledge and to making the world a better place, but can at the same time suffer from work-related burnout. This paper examines one way in which researchers can be supported in the role they play for society: the use of a nature-based activity retreat designed for researchers.

1.1. *Retreat programs and stress relief*

Health retreats have been used for many generations as a place of rejuvenation and rest [1]. One definition of a retreat often used in the literature is “a purpose-built centre which accommodates its guests for the purpose of learning/improving a body-mind activity and/or learning-receiving complementary therapies or treatments whilst there” [2]. Within the field of environmental psychology where one studies how people relate to and define their sense of space and place, and how this may relate to and define people; the retreat concept is closely linked to this as a variety of physical activities often form an indirect part of health retreats programs [3, 4]. Retreat programs are often used in rehabilitating patients [5–7], reducing employees’ burnout and stress [8], increasing quality of life [9] and improving educational and leadership abilities [4], but little is known about the effectiveness of these activities. Retreat programs have been used to improve educational and leadership abilities, e.g. students and teachers have used retreats to develop their skill sets, and to stay up-to-date with rapid advancements in their fields of expertise [10].

1.2. *Work environment and stress*

In work environments, one of the main causes of burnout seems to be work-related stress [11–13] which may negatively impact the quality of work as seen in, for example, the health care sector [14, 15]. One risk factor for ill-health is physical inactivity, and the World Health Organization (WHO) ranks it as the

fourth most common cause of death in the world, causing 6% of deaths [16]. As health-supporting work environments including opportunities for physical exercises and academic walks [17] become more common in our universities, we are beginning to understand how this is linked both to better health and to possible new learning environments for both students and staff [18].

1.3. *Academic stress*

For academic researchers, the use of retreats is not yet commonly presented in the evidence-based literature, and thus evaluations are also scarce. The increasing administrative burden as well as the pressure to “publish or perish” is well known: “Researchers are pushed to compete more than ever, which often generates attitudes and professional behaviour that are inappropriate, counter-productive and undermine any cooperative behavior” [19]. Being a researcher and seeking knowledge means that you face a potentially limitless amount of work and therefore it is important that we become more aware of our embodiment and adept in the skills of reading the warning signals of stress [20]. There are studies in which different cultural activities have been used to stimulate experiences and behaviors that can increase quality of life, enrich memory, and thereby enable us to better comprehend feelings, and give us new forms of understanding and resilience [21–25]. Cultural activities in a broad sense can be dancing, listening to music, drawing, and being in stillness, as seen in the randomized control trial study of the Cultural Palette [26].

1.4. *Stress and restorative effects of nature*

Spending time in nature has been shown to have positive health effects, including the prevention of stress, the reduction of stress due to overwork and the advancement of learning [27, 28]. Different natural landscapes can be systematized as “restorative” in relation to different needs [29]. When evaluating and explaining stress and its relation to restoration, theories such as “Attention Restoration Theory”, [30] perceived stress [31] and Psychophysiological Stress Theory (PSRT) [32] have been used. Improved cognitive performance has been another factor used to measure and evaluate contact with nature [33]. A pertinent finding from such studies is that the natural environment can be more beneficial than the built

environment in relation to human health development [32, 34–36], and that being outdoors seem to be positively associated with vitality [37]. Studies have also shown improved physiology such as lower blood pressure and reduced stress levels [38, 39] in relation to the natural environment as compared to an urban environment.

1.5. Theme of the retreat

In this study, we explore the use of nature and art-related activities at a three-day academic retreat with a mixed group of six researchers from Sweden, Finland, and the United States in the archipelago of Stockholm in Sweden. A focus group interview was conducted with participants directly after the retreat, on day three. Three months after the retreat, a follow-up questionnaire was sent out to all of the participants. The theme of the retreat was “*Taking care of the researcher*,” and the purpose of this pilot study was to see how participants shared, communicated and perceived their different exercise/workshop experiences and the overall experiences of taking part of the retreat, with a special focus on the potential of the retreat to reduce stress and burnout.

The goal of the project is to build research capacity and resilience by investing in the researcher as a human instrument. The program of activities was created to be flexible and to also allow for face to face social time, which would foster the discussion of ideas and to create a mutually supportive mind set.

1.6. Aims and research questions

The aim in this pilot study is to explain in what ways, if any, a focused program using nature and art-related activities for researchers in a natural setting, away from the dense, hyperactive urban environment in which many researchers work, could be beneficial.

Our research questions are:

1. How do we organize a nature and art-related activity (NARA) retreat for researchers?
2. How do we, as researchers, perceive and communicate in a NARA retreat?
3. Which health factors do we find meaningful and important regarding taking care of ourselves as researchers?
4. After three months, what has been the perceived impact of the retreat? What, if anything, was meaningful and useful?

2. Method

2.1. Participants and setting

Six women, interdisciplinary researchers (mean age 51 years (20–76), from three different countries and universities (US, Sweden and Finland) were invited to a retreat on a small island on the outskirts of the archipelago of Stockholm in Sweden for three days.

The participants were accommodated in different houses, but shared meals during the three days. No one left the retreat area and all of the participants helped with practical tasks such as cooking, cleaning the dishes and helping organize the structure of each retreat exercise/workshop.

2.2. Selection of participants

Each researcher self-selected to participate in the retreat was asked to prepare and lead one or two workshops each on the theme “*Taking care of the researcher*”. Researchers were invited via email for their experience in an area of the arts. While the research disciplines of participants varied, each of the researchers had a well-developed and recognized skill in one area of the arts and/or humanities, including yoga, expressive writing, expressive movement, dance, singing, drawing, drumming, culture-specific expression, and nutrition.

This experience needed to have been applied in clinical or other practical contexts, although not necessarily with a group of researchers. The arts practices selected for the retreat included yoga, expressive writing, expressive movement, dance, singing, drawing, drumming, culture-specific expression and nutrition. Workshops were approximately 1.5 hours long, and scheduled at a specific time on the retreat agenda. The entire group took part in each of the different workshops together. Four of the participating researchers are also the authors to this article.

2.3. Duration of workshops

Only one workshop continued over three sessions and that was yoga: this took place each morning and was held both inside the main building and outside, on the ground, when the weather allowed it. The other workshops took place only once, and in a variety of locations on the island, including outside in nature, inside the main room and at an outside table. The participants worked either individually or collectively

as the workshop required. Some workshops required the participants to walk or move in solitude, while others were based on being together, and doing the same thing at the same time. Unstructured time was built in, as well, especially during meals and for a trip to the sauna. Although the unstructured time was not formally evaluated, it was a time of sharing ideas and building community among the group.

2.4. *The different exercises/workshops*

The different exercises/workshops provided were: Expressive writing workshop; Yoga workshop; Nature-based dance workshop; Mindful eating workshop; Self-figure drawing and life course dance workshop; Singing and rhythmic dance workshop; Dance and drums workshop; A shared culture-specific workshop. Each workshop ended with a verbal reflection and sharing for 15 minutes. See the Appendix for more details.

2.5. *Focus group interview*

After the different workshops the participants shared their experiences from the exercises and their taking part in the retreat overall during a focus group interview lasting two and a half hours. All data was digitally recorded and the participants listened to each other's experiences during the focus group. The data was collected directly after the end of the retreat, on the island, before participants left the retreat area. The recordings were then transcribed.

2.6. *Follow-up reflection*

Three months after the end of the retreat, the participants were asked to reflect on their retreat experience in a written form. They were asked to give a reflection on the whole of the retreat in response to two prompts: "1. Is there something specific that stayed with you, something which you retain as a symbol or memento from the retreat? and 2. If and how have you used something from the retreat in a specific situation, maybe a stressful or demanding one?"

The participants also gave two ratings regarding 1) meaningfulness and 2) usefulness of the retreat experiences (Visual Analogue Scale (VAS) ranking from 1–10). Participants sent their ratings directly to the researcher responsible of data collection on the project and did not see each other's ratings.

2.7. *Data analyses*

The analysis began with approaching the qualitative textual material (focus group interviews and the three month post-intervention reflections) with descriptive qualitative analytics: What were the words most frequently used in the data? What types of vocabulary did the participants in describing their retreat experience? For this purpose, a word cloud was created, to illustrate both the most frequently used words, and also their weight (i.e. how often used the words were in relation to one another). The word cloud was created using a free online service (wordart.com). Excluded from the cloud was a list of most common English words and particles, so called 'stop words', such as: as, at, be, few, for, from, and so on. We also excluded the self-evident word "workshop", which appeared extensively in the discussions, but also in the titles added to structure the texts.

2.8. *Content analysis*

After generating an overview of the vocabularies used, qualitative content analysis was used to identify which themes were focal in the material. To facilitate the qualitative content analysis, the computer software (Atlas.ti) was utilized. Its main uses were noting down segments from the textual material, keeping track of the coding by the researchers, and showing linkages between the various coded elements in relation to the purpose of the study.

For the qualitative content analysis, the texts were first read through several times, and reoccurring themes were taken down as codes in the analysis program. With these, the texts were coded, i.e., segments of the texts were marked as relating to a particular theme. In this process, further themes were found and taken down as codes, resulting to a rich and varied list of codes. In the course of the coding process, some codes were merged with one another, in particular if the same theme had been noted down with two different wordings (for example 'experience' and 'experiences'. At other times, codes were divided into two or more, when further analytical clarity was required from the coding (for example separating 'feelings: positive' from 'feelings: negative').

2.9. *Coding*

The coding process was cyclical (the creation of new codes and coding of the texts were constantly alternating and inseparable), and constantly in a close

In sharing, reciprocity was also essential, as this participant accounts:

“... you experienced something on your own, you shared it, and then you had it mirrored back to you. And in the mirroring back to you, I tried to emphasize each time that when we mirror, we also should pay attention to that which we had established as our own rhythm, our own dance. So, it was the coupling, it was the connection between our own and the other and being able to understand what we get from the other and what we get from ourselves”. (Quotation from participant no. 6)

The participant states, that the process of experiencing something and getting it mirrored back, and the connection established in it, was essential in this workshop and the retreat overall. On the one hand, it is possible to analyze and differentiate the fruits from each step of the process separately, on the other hand the whole process of sharing and connecting, as an entity, was seen especially fruitful.

A possible counterpart to sharing and connection would have been a theme of personal, inward development. Interestingly however, this theme did not appear in the data. It seems, from examining the accounts of retreat experiences, that the participants do not view the retreat experience as self-centered but instead focused on sharing and connection.

3.1.2. Theme 2: Embodiment

Another theme, which was especially prominent in the material, was embodiment, as this participant writes:

“For me this walking in nature collecting and thereafter sharing handpicked subjective meaningful natural artefacts was truly a strong significant moment because it gave me a deep sense of nature coherence – a deep group body/nature experience. Three months later, the artefact is still part of my everyday thinking”. (Quotation from participant no. 2)

Embodiment was expressed both in the detailed accounts of workshop experiences – as in handpicking artefacts here – and in participants’ underlining of the embodied nature of the whole retreat experience and its memories. Embodiment and connection were often related and seen as facilitating each other:

“The shared movements made me feel like we were sisters and gave me a concrete sensation of

meaningfulness, both in the body, mentally and spiritually. Three months later I need a refill, I need to be guided by someone to be able to reconnect the sensations and feelings from the retreat”. (Quotation from participant no. 2)

Some of the accounts on embodiment were connected with the daily yoga workshops, but not a majority. Rather, embodiment was often linked with nature, being part of nature, and through that connection being able to better listen to oneself. As this participant puts it:

“X’s dance session was the most successful for me because in her guidance in finding the internal rhythm got you to be connected with your mind and body. Lying, dancing and moving freely to my own internal rhythm became a moving meditation”. (Quotation from participant no. 4)

Interestingly, some participants linked embodied experience to the lasting memory and the usefulness of the retreat:

“Also, since so many of the exercises we did were physical, as well as mental, I remember the entire experience much much better than I do, say, from the two day seated conference I attended only a week ago. Now that’s a fantastic take-away!” (Quotation from participant no. 5)

The embodied nature of the experiences through the various and varied sensory perceptions linked to them contribute to the durability and usefulness of the experience. The relationship between something being remembered and something being experientially useful and used is regarded as part of future embodied memories.

3.1.3. Theme 3: Nature

The third theme, strongly prominent and recurrent in the material, was nature. Although the retreat was titled a nature and art-related retreat, its meaning at the time was more about the place we were going rather than a discussion theme with conceptual parts. The elements relating to nature were mentioned in connection with the various workshops, and were also given a role as a means of both communication and individual perception, as this participant writes:

“Those things shed by nature (pebbles, shells, leaves, twigs, feathers, bark, and such) remind me of the cycle of life and how this refuse commonly becomes once again part of the earth and its processes much more often than it becomes a

collection that looks for a couple days like an art collage. Certainly, it becomes a metaphor for what we shed and leave behind in our lives and how these leavings become something else whether we are aware of it or not". (Quotation from participant no. 1)

The theme of nature was closely connected with the themes of sharing and connection, and embodiment. Nature facilitated the processes of connecting and sharing, and nature was experienced in an embodied manner.

However, nature was also seen more contextually, as a framework and environment for the whole retreat. In this sense, the theme illuminated the title – a nature and art-related retreat.

"The wood workshop was very interesting because I learned about the continuous patterns of nature and the world surrounding us. I think this workshop can be very beneficial in helping individuals see outside of themselves. Nature and life are such fascinating and inspiring phenomena that many people take for granted. Having the opportunity to see art in nature filled me with so much intrigue and gratitude". (Quotation from participant no. 4)

For this participant, participating in the workshop in a nature-based context was an eye-opening experience, evoking feelings of gratitude, awe and awakening. As a context, the nature and the island setting were also linked to detachment from the everyday life, as another participant puts it:

"Time to go to a place on the island for private reflection, deep breathing or dance was divine. Surprisingly, the writing and drawing sessions were stress free though I am not sure that I found them stress reducing. The ability to be on an island for a designated amount of time was de-stressing in itself". (Quotation from participant no. 1)

The de-stressing effect was here linked to being on an island, which could also have a symbolic meaning, the focus being on spatial seclusion of a retreat location. The functional and symbolic positive interesting union of a context that is both practical and directional.

Participants also recognized the effect of nature for their continuing work after the retreat, and wanted to continue arranging nature-based experiences to themselves, as these two participants write:

"My awareness of symbolic values of things has increased and I have created a nature-related space where I can revitalize my body and spirit. And the need of being in this newly adapted nature-related space more regularly is part of a new life style and has given me, as a human being and researcher, more meaning". (Quotation from participant no. 2)

"[after the retreat I] have stepped back into nature during times where I feel my stress cannot be managed by a mindful mindset. I have learned to essentially "take care" of myself in moments of chaos by choosing to step away from the stressful moment and return after finding grounding from nature and a connection to myself". (Quotation from participant no. 4)

Nature's effect on well-being is here linked to revitalization of both body and spirit, meaning in life, stress management and connection to oneself. The positive aspect of 'taking care' is attributed to nature itself, but also experienced through the effect of the nature-based retreat and workshops. The retreat seems to have greatly facilitated the connection to nature – and linked to the nature-related experiences the themes of sharing and connection, and embodiment.

3.2. *Meaningfulness and usefulness of the retreat*

As described earlier, written, numerical and verbal evaluations of the retreat were collected from the participants at the follow up after 3 months. The results of the numerical data can be found in Tables 1 and 2. There are missing values for Participant 6 because of deadline misunderstanding.

Tables 1 and 2 reveal that both the experienced and expressed meaningfulness and the usefulness were relatively high for all the workshops at the retreat. The mean value of the meaningfulness was slightly higher than the mean of the usefulness, but only slightly. As for the usefulness, the workshops experienced as the most useful were the yoga and the mindful eating workshop. The least useful were woodwork workshop and smudge ceremony.

However, variance was quite small: mean usefulness ratings ranged from 5.6 (smudge ceremony) to 8.3 (yoga). As for the meaningfulness, the workshops experienced as the most meaningful were the nature-based dance, and the self figure drawing + dance workshop. The least meaningful were the wood-

Table 1
Meaningfulness of the workshops (Visual Analogue Scale ratings from 0–10, where 10 is the highest)

Participant	Writing	Yoga	Nature + dance	Eating	Drawing + dance	Sing + dance	Drum + dance	Woodwork	Smudge	Mean
Participant 1	9	9	8	6	8	8	9	–	10	8,4
Participant 2	9	5	7	9	8	9	8	9	8	8,0
Participant 3	4	9	10	10	10	7	3	3	4	6,7
Participant 4	10	10	10	10	10	–	10	10	10	10,0
Participant 5	–	10	10	10	10	10	8	5	4	8,4
Participant 6	10	9	–	8	9	–	3	–	6	7,5
Mean	8,4	8,7	9,0	8,8	9,2	8,5	6,8	6,8	7,0	8,1
										8,2

Table 2
Usefulness of the workshops (Visual Analogue Scale ratings from 0–10, where 10 is the highest)

Participant	Writing	Yoga	Nature + dance	Eating	Drawing + dance	Sing + dance	Drum + dance	Woodwork	Smudge	Mean
Participant 1	8	9	7	5	7	7	–	–	–	7,2
Participant 2	7	6	6	8	6	9	7	8	6	7,0
Participant 3	5	6	6	8	8	7	5	5	6	6,2
Participant 4	9	10	10	10	8	–	6	5	5	7,9
Participant 5	–	10	10	10	10	6	8	5	4	7,9
Participant 6	10	9	–	8	8	–	5	–	7	7,8
Mean	7,8	8,3	7,8	8,2	7,8	7,3	6,2	5,8	5,6	7,2
										7,3

work workshop and smudge ceremony. Also here the variance was very small: mean meaningfulness ratings ranged from 6.75 (woodwork) to 9.2 (self-figure drawing + dance). Between participants there are some differences, for example Participant 3 has given out generally lower scores than the others. But also her evaluations are relatively high and stable across each of the workshops.

4. Discussion

The theme of the retreat was “*Taking care of the researcher*,” and its purpose was to see how the participants shared, communicated and perceived their different exercise/workshop experiences and the experiences of taking part of the retreat, using nature and art-related activities.

4.1. *Sharing and connecting*

The word cloud created an intriguing starting point for the deeper analysis of the material: How, and with what vocabularies, are the themes of well-being discussed in the material, among the retreat participants? Two of the most prominent themes in the material were sharing and connection. The theme of embodiment was significantly more prominent in

the material than the themes of spirituality, spiritual growth or self-expression. This finding is especially interesting, when taking into account that many of the retreat exercises were spiritually or artistically focused. Sharing and connecting may be interpreted as a driving force for authenticity and vulnerability where age, titles, and background do not have an influence. In comparison with previous health care packages with artistic activities taking place indoors, the activities used in this study seem to evoke a deeper sense of sharing and connection among the participants [26, 41].

4.2. *Useful and meaningful*

It seems that the retreat workshops were both useful and meaningful to the participants. This is affirmed and clarified in detail from examination of the verbal material. It also seems that no single workshop, nor a single type of activity is accountable for the “effect” seen. At this stage it should be noted, that this numerical data is here treated as a heuristic tool rather than a quantitative analysis method. This approach enables us to relate and compare the participants’ experiences to each other anonymously, as the evaluations were collected so that the respondents did not see one another’s answers. This creates a foundation for the qualitative analysis, wherein we

focused on themes, meanings, and contents given to the retreat experience overall, instead of analyzing, for example, the each of the workshops.

4.3. *Letting in of caring lives – Theory U*

In examining the accounts of the retreat experience from the focus group, the participants do not view the retreat experience as self-centered but instead focus on sharing and connection. The diversity in ages and backgrounds of the researchers may account for some of this interest. Each invitee brought something to teach and came prepared to learn. For the most part discussions held were not about professional lives – jobs, papers published, etc., but on personal traditions, was different from the experience that researchers generally have at other types of enrichment events such as professional conferences, symposia etc. This process of letting go of professional lives and letting in of caring lives, may have established a connection to a deeper source of knowing and bears resemblance to Theory U [43], which states that when we start to listen to each other, by “co-initiating” a common intention, via “co-sensing” by listening within, we can allow the inner knowing to emerge. This knowledge is reached by the so called “precensing” state. Thereafter “co-creating” leads to the “co-evolving” when we can act through an embodied wholeness. All those states are involved in Theory U [44], as an innovative state, and by means of this retreat, a process of translating tradition, into health self care, could start to take place.

4.4. *The embodied feeling of learning*

Embodiment was often linked with nature in the texts, e.g. “*being part of the nature*” and also through that connection, the participants were also able to better listen to themselves. The term embodiment explains cognition’s relation to the physical body, and its theoretical focus, according to Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric [44], is the brain’s modality-specific systems. These systems are constituted by a combination of different processes: the sensory systems, which regulate perception, the motor systems, which trigger actions; and the introspective systems, which govern conscious experiences of emotion and cognition. As Damasio puts it “*We feel therefore we learn*” [45], describing how embodiment is part of a spectrum in which the participants start to reconnect through feelings and

sensing and thereby start connecting to the knowledge of each others. Embodiment is often discussed as a neglected dimension in researchers daily life [44].

This is also an important part of new learning environments; embodiment is a major part of how we learn from each other, and how we mirror one another via our own bodies and the ‘bodies’ of our academic societies [20].

4.5. *Fibonacci’s fractal dimension and trust*

Looking at the data, the de-stressing effect observed was partly linked to being on an island, which could be due to its symbolic meaning. Moreover, the qualitative nature of the natural environment could have evoked a sense of meaning: Fibonacci numbers (the golden ratio) presented in the literature [46, 47] help us to feel safe and to feel meaning from the repetition of fractals, natural patterns to which we automatically attach our gaze. This could also be seen as an important contributor to the trustful sharing mechanism related to the findings in this nature-based retreat.

4.6. *Wakefully relaxed*

A “wakefully relaxed state” is presented as a factor in the literature on nature-based activities, and can be evaluated from brain signals when perceiving fractal patterns from nature [48]. This state is an interesting one to relate to the openness and compassionate mindset reported between the participants during the retreat. This state could be interpreted as part of the clarity of mind that was described as being shared by the participants, and as linked to the relaxed social climate seen in the results of the content analyses.

In another meta-analysis of nature interactions where they were related to urban interactions with regard to a specific cognitive performance, interaction with nature was found to increase cognitive performance, especially when revisiting nature compared to revisiting the urban environment [49]. Even though we did not measure health effects, it is important to include in this discussion the notion of “dose” in relation to the retreat. Three days would have had a more significant impact than one day, and it is likely that more generally health benefits from nature experiences are closely dependent on the dose [50, 51]. For example, both frequency and duration seem to play an important role when targeting depressive patients in urban regions [50].

4.7. No “business-center”

While the retreat was consistent with other professional retreats in length of time (2 nights, 3 days), many of its other features were uncommon. Only six people attended the retreat and it was located on a small island. The bulk of the retreat was held out of doors, in nature and not at a conference center. As there was no “business center,” there were no Powerpoint or other technologically-mediated presentations. Individuals shared rooms and bathrooms looking out to nature and the sea. They assisted with setting out and cleaning up prepared meals and stayed in close proximity to one another throughout the retreat time.

During the workshops where individuals were asked to spend time alone, they could often be seen by others, maintaining a sense of intimacy, safety and togetherness.

The group bonding that occurred at the retreat had a spillover effect. Each researcher has indicated through email and other discussions, a desire to develop a further retreat and to continue studying and refining the themes of the first. Memories of the retreat appear overwhelmingly positive and words including, “de-stressing,” and “relaxing” are often used in the text analyses.

4.8. Revitalization from nature interplay

Our research presents new possible pathways of implementation for nature and art-related activities in researchers’ lives. The retreat, which was notably chosen by the participants themselves, allowed the researchers to share their backgrounds, their ways of looking at critical life issues, and both the mental space and social setting to test ideas and follow digressions from topic to topic. The retreat also allowed for a freedom of mind and body that brought the researchers both rest and reinvigoration.

Integrating art-related activities was equally vital. Creativity and problem-solving are common human attributes [52]. However, in striving to incentivize and support good research, interventions and programs generally target skills and tools rather than supporting the researchers’ innate capacities. As compared with indoor creative activities targeted toward the alleviation of burnout, [26] outdoor activities seem to be able to provide self-care to a broader and perhaps also deeper extent because they involve senses that are triggered and evoked from interplay with nature [37]. Outdoor and nature activities have also

received considerable attention in relation to the ongoing COVID-19 pandemic. The global pandemic reminds us of the co-evolution of humans and nature and that “*we are part of and not separate from nature*” [53].

4.9. Tuning into primitive parts

Participation in the research has been a process that has allowed researchers to interact more authentically with one another, and has opened up the possibility of developing this article and working further together. The experience of the nature and art-related activities and relating to one another in a different way, has created a foundation of embodied knowledge and trust both in each other and in the process of research: “we will handle this”, “we will find new directions together”. In this, we would argue that it is essential that such interventions are nature-based, in order that we are able to ‘tune in’ to the primitive parts of ourselves. In nature, we cannot maintain our facades: nature presents us with contrasts to our urban academic lives, it can be upside down, unstructured, not designed, not owned.

4.10. Communication health in a new way

Studies show that post-retreat health benefits can span from immediate effects up to five years post-retreat [50]. As we have seen in this study, the population was small and may have therefore given the group a sense of intimacy from both sharing and connecting strongly. The importance of sharing a workshop that had previously been embodied by one of the researchers participating may also have played a part in establishing intimacy and trust: letting each participant contribute an activity may be a key to the success of the intervention. When people do not know each other beforehand, this could provide a link into new possible health solutions. As noted, the participants did not talk about their physical health and effects, this was not the focus even though the explicit purpose of the retreat was to ‘take care’ of the researcher.

4.11. Nature and art in the curriculum of academic life

When evaluating retreats, factors such as sharing and connecting seem to be as important as well-being and health. Even though this is a small sample size study, with a short follow-up, it would be valuable

to take these results forward and the questions they raise, as research-based retreats become more popular in the quest to halt the epidemic of workplace stress and burnout. A further contribution of this study is to argue that we need to develop new or extended vocabularies regarding available interventions to be able to investigate the researchers well-being in the future. We know that intellectual sparks are energizing and appear to foster creativity, and the ability to discover inner unseen images, in this study evoked from nature and arts, is also at the heart of the research process [17, 52]. This is why nature visits and retreats may need to be better represented in the curriculum of academic life.

Due to the COVID-19 pandemic, academia (as well as society at large) has been forced to adjust to physical distancing regulations, and develop new teaching activities mainly towards online learning (UNESCO 2020). Also, as research projects have been halted, the direction of funding has changed [54], increasing stress in professionals in higher education and research, such retreats (and potentially also online versions) could be useful for managing through the pandemic and afterwards [53].

4.12. *Limitations*

The study has its apparent limitations. The sample is small and selection criteria of the participants was through proclaimed interest in this type of activities. Also, the retreat was a one-time activity, and participants were not followed during an extensive period of time. Thus, these activities would be fruitful features to be explored in subsequent studies of the subject. A randomized sample intervention research design with control group could give even more new insights on the impact of nature-related activities for researchers and also for post-COVID-19 stress-related disorders in academia.

5. Conclusion

There has been insufficient study about ways the primary research instrument, the person who generates and studies hypotheses, can be supported. Researchers are rarely considered as subjects even though many aspects of public good emanate from their capacity to create and continuously refine solutions to problems. In an early action to examine support for researchers, this study describes and evaluates a three day nature and art-related activity

designed to empower researchers who are actively engaged in research across different fields and who use different methodologies. Findings suggest that the participant researchers found a defined range of benefits from the retreat model that used structured art activities.

The preliminary results of this study provide some new understandings and raise questions for future research: firstly that researcher well-being is supported through relationships with others, secondly that shared embodied “non-academic” vocabularies are important. The type of activity in the nature-based retreat appears not to be as important as sharing purposeful activity in nature. Finding a shared vocabulary did not seem to play the role of educating about technical aspects of research, rather it was a recognition that human burdens as well as inspiration and resilience inhabit and inform the researcher while they zealously pursue answers to defined questions.

Noting that the work of the researcher occurs almost exclusively indoors and in settings that eliminate or subdue nature (plants, water, wind, even sunlight) but the activities in the nature-based retreat took place mostly outdoors in varied weather albeit with shelter. Findings point to ideas where nature could be incorporated in selected intense intellectual pursuits such as inaugurating courses and orientating research communities and space. A featured finding is that a nature-based retreat fosters trust. Creative space to engage common purpose and individual ingenuity was found in this study. Sharing natural space was felt by participants to put humanity into perspective, connecting with the social goals of research. Findings from this pilot study reveal that the research process from conceptualization to dissemination and teaching can be enhanced by supporting the researcher. Organizing and systematizing health preventive interventions and retreats for researchers in academia may be an important part of the sustainable academic community in which the researcher needs to be better taken care of in a more embodied way. Although this study was conducted prior to COVID-19, such retreats and potentially also online versions could be useful for managing through the pandemic and afterwards, in our new “normal”.

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Conflict of interest

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References

- [1] Smith M. Holistic holidays: tourism and the reconciliation of body, mind and Spirit. *Tour Recreat Res*. 2003;28(1):103–8. <https://doi.org/10.1080/02508281.2003.11081392>
- [2] Smith M, Kelly C. Holistic tourism: journeys of the self? *Tour Recreat Res*. 2006;31(1):15–24. <https://doi.org/10.1080/02508281.2006.11081243>
- [3] Giesecking J. Environmental Psychology. In T. Teo, M. Barnes, Z. Gao, M. Kaiser, R. Sheivari, & B. Zabinski, (Eds.), *International Encyclopedia of Critical Psychology* (pp. 587–593). New York: Springer; 2014. https://doi.org/10.1007/978-1-4614-5583-7_674
- [4] Naidoo D, Schembri A, Cohen M. The health impact of residential retreats: a systematic review. *BMC Complement Altern Med*. 2018;18(8):1–17. <https://doi.org/10.1186/s12906-017-2078-4>
- [5] Vella EJ, Budd M. Pilot study: retreat intervention predicts improved quality of life and reduced psychological distress among breast cancer patients. *Complement Ther Clin Pract*. 2011;17(4):209–14. <https://doi.org/10.1016/j.ctcp.2011.01.005>
- [6] Kennedy JE, Abbott RA, Rosenberg BS. Changes in spirituality and well-being in a retreat program for cardiac patients. *Altern Ther Health Med*. 2002;8(4):64–73.
- [7] Beatus J, O'Neill JK, Townsend T, Robrecht K. The effect of a one-week retreat on self-esteem, quality of life, and functional ability for persons with multiple sclerosis. *J Neurol Phys Ther*. 2002;26(3):154–9. <https://doi.org/10.1097/01253086-200226030-00007>
- [8] Gilbert A, Epel E, Tanzi R, Rearden R, Schilf S, Puterman E. A Randomized Trial Comparing a Brief Meditation Retreat to a Vacation: Effects on Daily Well-Being. *The Journal of Alternative and Complementary Medicine*. 2014;20(5):A92–A. <https://doi.org/10.1089/acm.2014.5242.abstract>
- [9] Cohen MM, Elliott F, Oates L, Schembri A, Mantri N. Do wellness tourists get well? An observational study of multiple dimensions of health and well-being after a week-long retreat. *Journal of alternative and complementary medicine*. 2017;23(2):140–8. <https://doi.org/10.1089/acm.2016.0268>
- [10] Vessey JA, DeMarco RF. The undergraduate research fellows program: a unique model to promote engagement in research. *J Prof Nurs*. 2008;24(6):358–63. <https://www.ncbi.nlm.nih.gov.proxy.kib.ki.se/pubmed/19022209#>
- [11] Golkar A, Johansson E, Kasahara M, Osika W, Perski A, Savić I. The influence of work-related chronic stress on the regulation of emotion and on functional connectivity in the brain. *PLoS ONE*. 2014;9:e104550. <https://doi.org/10.1371/journal.pone.0104550>
- [12] Norlund S, Reuterwall C, Hoöoög J, Lindahl B, Janlert U, Birgander LS. Burnout, working conditions and gender - Results from the northern Sweden MONICA Study. *BMC Public Health*. 2010;10(326):1–9. <https://doi.org/10.1186/1471-2458-10-326>
- [13] Zoni S, Lucchini RG. European approaches to work-related stress: A critical review on risk evaluation. *Saf HealthWork*. 2012;3(1):43–49. <https://doi.org/10.5491/shaw.2012.3.1.43>
- [14] Kutney-Lee A, Wu ES, Sloane DM, Aiken LH. Changes in hospital nurse work environments and nurse job outcomes: An analysis of panel data. *Int Nurs Stud*. 2013;50(2):195–201. <https://doi.org/10.1016/j.ijnurstu.2012.07.014>
- [15] Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, West CP. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clin Proc*. 2015;90(12):1600–13. <https://doi.org/10.1016/j.mayocp.2015.08.023>
- [16] World Health Organisation (2009) *Global Health Risks*. Geneva, Switzerland: World Health Organisation. Retrieved from https://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf
- [17] Keinänen M. Taking your mind for a walk: a qualitative investigation of walking and thinking among nine Norwegian academics. *Higher Education*. 2016;71(4):593–605.
- [18] Berthelsen H, Muhonen T, Toivanen S. What happens to the work environment when activity based offices are introduced into academia? *J. Corp. Real Estate*. 2018;20:230–43. <https://doi.org/10.1108/JCRE-06-2017-0017>
- [19] Landes X, Marchman M, Nielsen M. The academic rat race: Dilemmas and problems in the structure of academic competition. *Learning and Teaching*. 2012;5(2):73–90. <http://dx.doi.org/10.3167/latiss.2012.050205>
- [20] Bojner Horwitz E. Humanizing the working environment in health care through music and movement – The importance of embodied leadership. In L.O., Bonde, & T., Theorell (Eds.), *Music and Public Health – A Nordic perspective* (pp. 186–199). Cham Switzerland: Springer; 2018. https://doi.org/10.1007/978-3-319-76240-1_12
- [21] Cohen GD, Perlstein S, Chapline J, Kelly J, Firth KM, Simmens S. The impact of professionally conducted cultural programs on the physical health, mental health and social functioning of older adults. *Gerontologist*. 2006;46(6):26–34. <https://doi.org/10.1093/geront/46.6.726>

- [22] Theorell T, Konarski K, Engström R, Lagercrantz AM, Teszary J. Treatment of long-term psychosomatic states with creative art psychotherapy. *Vård*. 1993;1:94–7.
- [23] Theorell T. Psychological health effects of musical experiences - Theories, studies and reflections in music health science. London: Springer; 2014.
- [24] Bojner Horwitz E, Lennartsson AK, Theorell TPG, Ullén F. Engagement in dance is associated with emotional competence in interplay with others. *Front Psychol*. 2015;6:1096, 1–8. <https://doi.org/10.3389/fpsyg.2015.01096>
- [25] Immordino-Yang MH, McColl A, Damasio H, Damasio A. Neural correlates of admiration and compassion. 106(19), *Proc Natl Acad Sci*. 2009;106:8021–6. <https://doi.org/10.1073/pnas.0810363106>
- [26] Grape Viding C, Osika W, Theorell T, Kowalski J, Hallqvist J, Bojner Horwitz E. “The cultural palette” – A randomized study for women with burnout symptoms in Sweden. *BJMP*. 2015;8(2):a813. <https://doi.org/10.1007/s00420-012-0762-8>
- [27] Tyrväinen L, Ojala A, Korpela K, Lanki T, Tsunetsugu Y, Kagawa T. The influence of urban green environments on stress relief measures: A field experiment, *Journal of Environmental Psychology*. 2014;38:1–9, ISSN 0272-4944. <https://doi.org/10.1016/j.jenvp.2013.12.005>
- [28] Hansen MM, Jones R, Tocchini K. Shinrin-yoku (forest bathing) and nature therapy: A state-of-the-art review. *Int. J. Environ. Res. Public Health*. 2017;14(8):851. <https://doi.org/10.3390/ijerph14080851>
- [29] Grahn P, Stigsdottir UK. The relation between perceived sensory dimensions of urban green space and stress restoration. *Landsch. Urban Plan*. 2010;94(3–4):264–75. <https://doi.org/10.1016/j.landurbplan.2009.10.012>
- [30] Kaplan R, Kaplan S. *The Experience of Nature*. Cambridge: Cambridge University Press; 1989.
- [31] Cohen S, Kamarck T, Mermelstein R. A Global Measure of Perceived Stress. *J. Health Soc. Behav*. 1983;24(4):385–96. <https://doi.org/10.2307/2136404>
- [32] Ulrich RS, Simons RF, Losito BD, Fiorito E, Miles MA, Zelson, M. Stress recovery during exposure to natural and urban environments. *J. Environ. Psychol*. 1991;11(3):201–30. [https://doi.org/10.1016/s0272-4944\(05\)80184-7](https://doi.org/10.1016/s0272-4944(05)80184-7)
- [33] Stenfors CUD, Van Hedger SC, Schertz KE, Meyer F, Smith KE, Norman G, Bourrier SC, Enns JT, Kardan O, Jonides J, Berman MG. Cognitive restoration from nature across multiple exposure types – a meta-analysis delineating the effects of test order and affect. *Frontiers in Psychology*. 2019. <http://doi.org/10.3389/fpsyg.2019.01413>
- [34] Bowler DE, Buyung-Ali LM, Knight TM, Pullin AS. A systematic review of evidence for the added benefits to health of exposure to natural environments. *BMC Public Health*. 2010;10(456):1–10. <https://doi.org/10.1186/1471-2458-10-456>
- [35] Annerstedt M, Joönsson P, Wallergård M, Johansson G, Karlson B, Grahn P, Wåhrborg P. Inducing physiological stress recovery with sounds of nature in a virtual reality forest - Results from a pilot study. *Physiol. Behav*. 2013;118:240–50. <https://doi.org/10.1016/j.physbeh.2013.05.023>
- [36] Stenfors CUD, Bojner Horwitz E, Osika W, Theorell T. Similarities, disparities and synergies with other complex interventions. In M. van den Bosch and W. Bird (Eds.) *Nature and Public Health: The Role of Nature in Improving the Health of a population* (pp. 139–144) Oxford: Oxford University Press; 2018. <https://doi:10.1093/med/9780198725916.003.0029>
- [37] Ryan MR, Weinstein N, Bernstein J, Brown KW, Mistretta L, Gagné M. Vitalizing effects of being outdoor and in nature. *J of Environmental Psychology*. 2010;30(2):159–68. ISSN 0272–4944. <https://doi.org/10.1016/j.jenvp.2009.10.009>
- [38] Hartig T, Evans GW, Jamner LD, Davis DS, Gaörling T. Tracking restoration in natural and urban field settings. *J. Environ. Psychol*. 2003;23(2):109–23. [https://doi.org/10.1016/s0272-4944\(02\)00109-3](https://doi.org/10.1016/s0272-4944(02)00109-3)
- [39] Pretty J, Peacock J, Sellens M, Griffin M. The mental and physical health outcomes of green exercise. *Int. J. Environ. Health Res*. 2005;15(5):319–37. <https://doi.org/10.1080/09603120500155963>
- [40] Frieze S. *Qualitative Data Analysis with ATLAS.ti*. London: Sage; 2019.
- [41] Tuisku K, Pulkki-Råback L, Virtanen M. Cultural events provided by employer and occupational wellbeing of employees: A cross-sectional study among hospital nurses. *Work*. 2016;55:93–100.
- [42] World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA* 27, 2013;310(20):2191–4. doi: 10.1001/jama.2013.281053
- [43] Scharmer CO. *Theory U: Leading from the Future as it Emerges*. Cambridge, USA: The Society for Organizational Learning; 2007.
- [44] Niedenthal P, Barsalou L, Winkielman P, Krauth-Gruber S, Ric F. Embodiment in attitudes, social perception and Emotion. *Personality and Social Psychology Review*. 2005;9(3):184–211. https://doi.org/10.1207/s15327957pspr0903_1
- [45] Immordino-Yang MH, Damasio A. We Feel, Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education. *Mind, Brain, and Education*. 2007;1(1):3–10. <https://doi.org/10.1111/j.1751-228x.2007.00004.x>
- [46] Taylor RP, Spehar B, Van Donkelaar P, Hagerhall CM. Perceptual and physiological responses to Jackson Pollock’s fractals, *Frontiers in Human Neuroscience*. 2011;5:1–13. <https://doi.org/10.3389/fnhum.2011.00060>
- [47] Mandelbroth BB. *The Fractal Geometry of Nature*, New York: W.H. Freeman and Company; 1982. <https://doi.org/10.1002/bbpc.19850890223>
- [48] Hagerhall CM, Laike T, Kuller M, Marcheschi E, Boydston C, Taylor RP. Human physiological benefits of viewing nature: EEG responses to exact and statistical fractal patterns. *Nonlinear Dynamics Psychol. Life Sci*. 2016;19(1):1–12. <https://doi.org/10.1068/p5918>
- [49] Stenfors CUD, Bojner Horwitz E, Osika W, Theorell T. Similarities, disparities and synergies with other complex interventions. In M. van den Bosch and W. Bird (Eds.) *Nature and Public Health: The Role of Nature in Improving the Health of a population* (pp. 139–144) Oxford: Oxford University Press; 2018. <https://doi:10.1093/med/9780198725916.003.0029>
- [50] Shanahan DF, Bush R, Gaston KJ, Lin BB, Dean J, Barber E, Fuller, RA. Health benefits from nature depend on dose. *Scientific reports*. 2016;6:28551. <https://doi.org/10.1038/srep28551>
- [51] Korpela K, Nummi T, Lipiäinen L, De Bloom J, Sianoja M, Pasanen T, Kinnunen U. Nature exposure predicts well-being trajectory groups among employees across two years. *Journal of Environmental Psychology*. 2017;52:81–91, ISSN 0272–4944. <https://doi.org/10.1016/j.jenvp.2017.06.002>

- [52] Atchley RA, Strayer DL, Atchley P. Creativity in the Wild: Improving Creative Reasoning through Immersion in Natural Settings. *PLoS ONE*. 2012;7(12):e51474. <https://doi.org/10.1371/journal.pone.0051474>
- [53] Corbera E, Anguelovski I, Honey-Rosés J, Ruiz-Mallén I. Academia in the Time of COVID-19: Towards an Ethics of Care. *Planning Theory & Practice*. 2020, 1–9. <https://doi.org/10.1080/14649357.2020.1757891>
- [54] Eke OF, Morone CC, Liteplo A, Shokoohi H. Non-Covid-19 clinical research in the era of pandemic. *The American Journal of Emergency Medicine*. 2020. <https://doi.org/10.1016/j.ajem.2020.05.013>
- [55] UNESCO. COVID-19 Educational Disruption and Response. 2020. Retrieved from <https://en.unesco.org/covid19/educationresponse>