

QUALITATIVE CASE STUDY RESEARCH ABOUT THE CHANGES OF STUDENTS' WELL-BEING EXPERIENCE IN A NATURE-BASED MULTIFORM LEARNING COURSE

VEERA ANNUNEN, TOMMI HAAPAKANGAS, SANNA
PANTSAR

Lapland University of Applied sciences , Faculty of Responsibility in Business and
Services, 96400 Rovaniemi, Finland
veeraannunen@gmail.com, tommi.haapakangas@lapinamk.fi, pantsarsanna@gmail.com

Abstract This article is based on a study that investigated the changes in students' perceived well-being during a multifaceted nature relationship course. The aim of the study was to provide research evidence on the use of nature in the design and delivery of curricula and training. The research topic is relevant because student wellbeing is in decline. Student well-being is important for students themselves, but also for the effectiveness of society. The research was conducted using a mixed methods research approach. The qualitative data consisted of reports written by the participants before the course, after two months of the course and after the course. The quantitative data consisted of the results of the Working and Learning Style Analysis carried out on the participants at the beginning and end of the course. There were many positive changes in the physical, social and especially psychological well-being experienced by the participants during the course. The lack of rush gave students time to focus on basic needs, living in the moment, resting and feeling for themselves. Consciously pausing in a restorative environment led to processing stress, anxiety and negative thoughts, which increased the well-being. The course had a boosting effect on positive emotions and self-confidence.

Keywords:
students
wellbeing
nature
relationship
multiform
learning
psychological
wellbeing
biofilia

1 Introduction

Student fatigue is alarmingly common in Finland, with more than half of all HEI students becoming exhausted after their initial enthusiasm has waned. In Finland, the health and well-being of higher education students has been systematically monitored since 2000 through the Health Survey of Higher Education Students (KOTT). The incidence of various diseases has remained very similar throughout the history of the survey, but the prevalence of diagnosed anxiety and depression has tripled.¹ According to the 2021 study, one in three students will experience stress, exhaustion and mental health disorders affecting their well-being.²

A mentally well person thinks of themselves and their future in a positive light. They value themselves and have a positive attitude towards others³. Human sociality describes the relationship between people, environments and groups.⁴ Human social well-being is built throughout life and the concept is described by the fact that people exude care, openness, respect, interaction and the knowledge that things are permanent.⁵

The experience of well-being is always a subjective opinion about one's own well-being. Nature has been found to have both short- and long-term effects on well-being. There is evidence from various scientific disciplines on the regenerative effects of experiencing nature⁶. Eco- and environmental psychology has exploited views based on internal self-regulation mechanisms, stress and self-regulation.⁷ Of particular interest are the deeper awareness and self-acceptance enabled in guided nature experiences.⁸ Nature experiences and nature triggers not only recovery but also deep reflection. According to Brymer in his study, in addition to recovery, nature triggers deep reflection in the experience of nature. Reflection is triggered in particular by the emotions that arise from the experience of nature. The most

¹ Kunttu ym., 2016

² Parikka, Holm, Ikonen, Koskela, Kilpeläinen & Lundqvist, 2021

³ Ojanen & Liukkonen, 2017, pp. 215-216

⁴ Polvi & Telama, 2010, p. 629

⁵ Finnish National Board of Education, 2020

⁶ Salonen, 2020

⁷ Vuorinen, 1990

⁸ Sahlin et al., 2012

important thing from the point of view of well-being is the growth in self-awareness that these emotions and the thoughts they generate generate.⁹ Could nature-based studies such as nature sports, sustainability education and nature education also support students' experience of well-being?

The aim of the study was to determine which factors in the nature experience carried out by studies and education, have a positive impact on the student's well-being. In addition, the aim was to provide useful information about the effects of nature in experienced well-being and utilization of Working and Learning Style methods in nature pedagogy.

2 Materials and methods

2.1 Design

The research was conducted in 2021. The research focused on the changes in well-being that occurred during the multifaceted course "Developing nature relationship in arctic nature". The course, organised by Lapland UAS, was attended by 32 university students from all over Finland. The sample for the study was therefore a discretionary sample of course participants.

The course ran from mid-April 2021 to mid-June 2021. Course included both face-to-face and distance learning. The course consisted largely of independent assignments, either on the Moodle platform or short nature excursions. At the end of the course, a final three-day excursion to Pallas-Yllästunturi nationalpark was organized.

2.2 Research data

The study combined qualitative and quantitative data in order to gain a better understanding of the research topic. However, the main focus was on qualitative data, i.e. students' accounts and their interpretation. The qualitative data used in the study was a three-part narrative mapping exercise conducted on the Moodle

⁹ Brymer, 2010

platform. In the mappings, students were asked to describe the role that nature plays in their experience of well-being.

The mapping was repeated at the beginning of the course, before the final excursion and at the end of the course, in order to provide information on changes in the students' experience of well-being during the course. Only the narratives of students who had responded to both the initial and final narrative surveys were included in the study. This choice was made because of the importance of the initial and final surveys in exploring change. There were 19 students who responded to the initial and final surveys, and all but two of these students had also responded to the mid-term survey.

The quantitative data for this study were collected using the WSA and LSA analyses. The analyses were carried out on students at the beginning and end of the course in order to detect changes between the initial and final situations. In order to compare changes, only the reports of students who responded either at the beginning or at the end of the course were excluded from the final data set. A total of nine students responded to each LSA analysis. From these students' reports, a group LSA report was constructed for the beginning and end of the course. A total of eight students responded to each

WSA analysis, and these students' reports were used to create a WSA group report on the beginning and end of the course. The WSA and LSA reports examined changes that had occurred in preferences, dislikes and resilience.

2.3 Research methods and procedure

The qualitative data were analysed using narrative analysis. Analysis started with an empathic reading in order to allow for an unbiased surrender to each narrative. Some of the students wrote in a very narrative way, using, among other things, onomatopoeic words, humour, metaphors and other linguistic expressions. Some students wrote in a very declarative tone. After the first reading, the students' stories were reread, this time focusing on the details of the stories rather than the plot. It was not until the third reading that notes were taken. Based on the readings and annotations, the themes were compiled and the students wrote about them in their

narratives, and then each student wrote about this theme in more detail. For example, one theme was the construction of a relationship with nature, under which the most important aspects of the construction of a relationship with nature that emerged from each student's narrative were written. In this way, similar themes were found, such as the importance of animals, parents or relatives in building a relationship with nature. Themes that emerged in only one student's story were also considered important and were not excluded from the research report. In addition to thematic analysis, the study used plot analysis and story typology. The end result was a coherent synthesis, one big story about the changes that occurred in students' well-being.

When analysing the WSA and LSA reports, it is important to understand the overall picture and therefore the reports were analysed by looking for the areas of the reports where the largest percentage changes had occurred.

3 Results

3.1 Results of narrative analyses

The initial survey revealed that the importance of nature for one's well-being and sense of stillness had increased as an adult. The mid-term survey found that even short moments in nature during the course had a positive impact on students' moods. Students reported that their senses were sharpened and some students learned to pause in nature as a result of the presence practice they learned on the course. Some had observed a deepening of their own relationship with nature during the course.

The final evaluation found that the course increased the students' physical, social and psychological well-being. The main source of well-being during the course was the final excursion.

Changes in physical well-being were related to the motivational effect of exercise, physical fatigue and exertion, and working around basic needs. The course and the final excursion motivated people to exercise more. Testing their own limits and pushing themselves in physically challenging situations taught students to trust their

own body's ability. During the final hike, the body was given a rest, activities were simplified and heart rates were lowered. Students described sleep as restorative and the final expedition as energizing.

Social well-being was provided by friends, new acquaintances and a safe community during the final walk. Some students found being alone pleasant after going on a solo trip during the final excursion.

The study found that a key factor in strengthening psychological well-being was the freedom from rush and accomplishment that the course day trips and the final excursion provided: the freedom from everyday obligations gave students time to pause and reflect on their own thoughts and feelings. As a result, unpleasant thoughts, worries, stress and anxiety were relieved or even disappeared completely. Positive thoughts and feelings increased during the course. The course gave students a sense of gratitude, contentment and self-grace. Even a genuine sense of happiness was reported to have returned.

The time in nature provided by the course also allowed for relaxation and calming down. The course provided a sense of serenity and for some students it inspired them to take more time to listen to their own bodies and calm down.

On the final excursion, the strengthening of psychological resilience and well-being was also made possible by overcoming challenges and, through this, learning and realisation. During the journey, the participants encountered adversity, which they eventually overcame. This led to some of the students realising that they could rely on their own mental capacity even in challenging moments. Success was followed by a rewarding feeling of accomplishment.

Being unscheduled and taking a breather allowed students to live in the moment, to wonder and to be surprised, which manifested itself in spontaneous decisions during the final excursion, a sense of the excursion and trust in their own intuition. Living in the moment inspired students to spend more time in nature and to add more unscheduled and unplanned time to their daily lives.

The students said that the nature relationship course and the final excursion helped them to reflect more deeply on their own relationship with nature, which helped them to find the important things in their lives.

3.2 Results of the WSA and LSA analyses

From the first WSA and LSA group reports, it was noticeable that the students had strong learned analytics, a situation where a person's brain holistic is more naturally dominant, but the person relies on learned analytics much more than biological holistic. In practice, this means that a person's inherent creative and daring style is overshadowed by a learned, systematic and routine style of performance. This situation is disadvantageous for a person's well-being, because it is a drain on energy to go against one's natural tendencies. The analytical skills learnt did not fade during the course.

For those who responded to the WSA analysis, the senses of inner speech and visualisation and imagination were strengthened during the course. For the students who responded to the LSA analysis, sensation and intuition were also strengthened in addition to the sensory pathways mentioned above.

4 Discussion

All students who participated in the final excursion of the course felt that their well-being had improved. Positive changes in students' well-being occurred as a result of the combined effect of the course tasks and the final excursion. These changes were particularly due to the final excursion, which took place in a very peaceful natural environment, and because three days of uninterrupted time in nature multiplies the well-being effects of nature compared to shorter nature excursions.¹⁰

4.1 Main findings 1 - Physical, Social and Psychological wellbeing

There were positive changes in the physical, psychological and social well-being of students. Social wellbeing was enhanced by time spent with friends, the security provided by the community, and the understanding of the importance of personal

¹⁰ Arvonen, 2014, p. 17

time. Physical wellbeing was enhanced by sleep and rest, and physical exertion perceived as positive. Psychological wellbeing showed the greatest change. Mental wellbeing effects came from the revitalising natural environment, the insights gained about oneself on the course, and the ability to transcend oneself. The natural environment of the final excursion proved to be particularly invigorating, as the excursion in the Pallas-Yllästunturi terrain made it possible to feel enchanted by the natural environment, to experience a connection with nature, to sharpen one's senses and to feel incomplete. This invigorating experience was supported by the security of community and friends in an unfamiliar environment.

Various Disciplines that humans develop through sensual encounters with the physical world.¹¹ The lack of rush gave students time to pause and focus on basic human needs, living in the moment, resting and feeling. Consciously pausing in a restorative environment led to noticing and processing stress, anxiety and negative thoughts, which increased the psychological well-being and psychological resilience experienced by the students. In addition to relieving negative thoughts and feelings, the course had a major impact on increasing positive emotions. Lessons and insights from the course emerged as a result of overcoming the challenges of the final journey and the course assignments. Drawing on Senninger's model and the findings of the study, the study concluded that the emergence of lessons and insights about oneself and changes in one's thinking and behaviour during the course required moving from the comfort zone to the learning zone.¹²

The students were encouraged to step out of their comfort zone when the teacher instructed them to do something different from their usual excursions on the final excursion. Overcoming challenges and pushing themselves both physically and psychologically boosted students' confidence and self-reliance. Thanks to the course assignments, students learned to be present in nature. The skill of being present, together with the observation of one's own sensations, proved to be the starting point, according to the narratives, for enabling the sharpening of the senses.

The study showed that the tasks, the insights gained during the course, the emphasis on metacognitive reflection on experiences and the first-hand experience of the well-

¹¹ Chawla, 2007; Hefit, 1988, 2001; Kahn & Kellert, 2002

¹² Kouvela, Hernandez-Martínez & Croft, 2018, p. 169

being effects of nature had a shaping and deepening effect on the meaning of nature. Course served as a wake-up call and a reminder to the students of the great power nature has for the human mind and for overall well-being. The course inspired students to spend more time in nature and to get out and about in the future. Research shows that childhood experiences of nature have played an important role in building a relationship with nature.¹³ However, the strength of the childhood relationship with nature did not seem to be related to the well-being effects of nature, as students whose relationship with nature had been built or strengthened at a later age also gained well-being from nature during the course.

4.2 Main Findings 2 - Changes in WSA- and LSA-analyses

The findings from the analyses suggest that the students' internal senses of inner speech, visualisation and imagination, as well as sensations and intuition, were strengthened during the course. The study found that the learned analytics did not diminish during the course, as the learned analytics were probably deeply embedded in the students' behaviour.

The interpretation was that simply understanding how to conduct one's own life is not enough to change such ingrained behaviours. A change in one's own behaviour is much more likely when one makes a detailed operational plan of where and when one intends to implement one's new behaviour.¹⁴ Thus, the learned analytics by the students did not diminish because they were not aware of the results of their own report, and thus did not know how to make a goal-oriented plan to change analytic mindset and increase holistic thinking. If the students had heard the results of their personal analyses from a methodological expert at the beginning of the course and had received a personal action plan based on their own report, there might have been many positive changes in the analytics learned by the group.

The study showed a strengthening of the internal senses of biological traits in nature. This was an interesting finding, as Prashnig says that biological traits cannot be modified much, and it doesn't happen quickly.¹⁵ However, the study made us

¹³ Chawla, 1999, 2007

¹⁴ Clear, 2020, p. 92–93

¹⁵ Prashnig, 2000, p. 112

wonder whether, once people are in their natural environment, i.e. nature, changes in biological factors may not happen so slowly. The strengthening of the internal senses - inner speech, visualisation and imagination, sensation and intuition - means in practice that receiving, learning and remembering information through these sensory pathways becomes more pleasant, easier and faster. In addition, the use of strong internal senses provides energy.¹⁶

Because the number of respondents to the analyses was so small, it was not possible to generalise from the reports. Although these changes were clear in both LSA and WSA respondents, a larger number of participants would have been needed for more reliable data.

Thus, if HEI's were to design curricula around nature, the natural environment would enhance students' internal senses. This would energise students to learn and facilitate their learning, thus supporting their experience of well-being. By speeding up learning through the use of strong senses, students will have more time to learn, while school statistics on academic performance will improve. In particular, we believe that strengthening the internal senses in nature would benefit students who already have the strongest internal senses by nature. When these students' inner senses are strengthened, they will find it easier to use their other senses to support their learning.

Strengthening the inner senses in nature also benefits those who do not have naturally strong inner senses. When the inner senses are strengthened, it is easier for students to listen to their own feelings alongside the voice of reason, which helps them to identify needs and habits that support their well-being in learning and in life in general. Considering the role of nature in pedagogy at a societal level, more nature intervention during lessons could have both short and long-term positive effects on students' well-being. We think that wellbeing effects could be reflected, for example, in improved psychological recovery of students, reduced feelings of stress and anxiety, and increased self-confidence.

¹⁶ Prashnig, 2006, p. 67–75

5 Conclusions

Siljander describes constructivist learning processes as being more about the internal regulation of the subject than the external one.¹⁷ In other words, learning always requires the learner to be active and to initiate internal processes, and not necessarily always to be taught or guided from the outside. Wellbeing-enhancing internal control psychology methods can be used to control aspects of student wellbeing such as self-esteem, self-esteem, separateness, assertiveness, the ability to express wants and needs, social skills and emotional skills.

The pedagogical solutions of the Nature Relationship course supported a deep metacognitive reflection of the student's inner perceptions, feelings, insights. The findings of the study support the argument of using internal control psychology as a more effective means of promoting well-being. Could the pedagogy of the future be attitude-based, with an emphasis on attitude, motivation, self-direction and self-reflection? Adding awareness skills, experiences of nature and their metacognitive reflection, for example as part of sustainability education, could support the skills of internal self-regulation, which are directly linked to strong psychological resilience and the experience of well-being. Wouldn't nature as a learning environment be a great solution to maintain and promote students' well-being and at the same time enhance learning? Using nature as a learning environment simply requires a review of attitudes and serves as a conducive mental health environment.

It would be interesting to know whether the changes that occurred during the nature course have remained in the lives and activities of the students even after the course. In the future, a similar study could be carried out to extend the study beyond the course so that the permanence of the changes can be examined. The benefits of the WSA and LSA analyses used to collect data for this study could have been optimised with a larger study population.

The research in this article was only a small part of a HEI's pedagogical development study. It does not yet address the issue of supporting student well-being through pedagogy on a large scale. However, it does suggest that nature experiences can

¹⁷ Siljander, 2002, s. 209

support students' ability to support their own well-being, but also their growth through increased awareness. The main insight for researchers has been that when building pedagogical models, the individuality of the human learner and human biology and psychology must be taken into account.

Connecting with nature and exploring the relationship with nature can be part of sustainability education in higher education as well as ecosocial literacy. More research is needed to find different pedagogical solutions to support students' well-being and employability. For example, by integrating the themes of sustainability and resilience into the curriculum, an ethically sustainable way of thinking about and supporting biophilia, defined by Wilson¹⁸, could be built through the examination of the relationship with nature. This would also respond to Arene's 2022 proposal on sustainable development competences.

References

- Arvonen, S. (2014). *Metsämieli: luonnollinen menetelmä mielentaitoihin*. Metsäkustannus Oy, Helsinki, Finland.
- Brymer, E., Cuddihy, T. F. & Sharma-Brymer, V. (2010). The role of nature-based experiences in the development and maintenance of wellness. *Asia-Pacific Journal of Health, Sport and Physical Education*, 1(2), 21–27. <https://doi.org/10.1080/18377122.2010.9730328>
- Chawla, L. (2007). Childhood experiences associated with care for the natural world: A theoretical framework for empirical results. *Children, Youth and Environments*, 17(4), pp. 144-170.
- Chawla, L. (1999). Life Paths into Effective Environmental Action. *Journal of Environmental Education*, 31(1), pp. 15-26.
- Clear, J. (2020). *Pura rutiinit atomeiksi: Näin saat aikaan muutoksen, joka pysyy*. Tuuma kustannus, Jyväskylä, Finland.
- Finnish National Board of Education. (2020). (publication date unknown). *Kouluikäisten terveyden polku. Henkinen ja sosiaalinen hyvinvointi: Kantti kasvuun – oppitunteja hyvinvoinnista*. Accessed on 10.9.2020. Retrieved from <https://www.oph.fi/fi/oppimateriaali/kouluikäisten-terveyden-polku/henkinen-jasosiaalinen-hyvinvointi>.
- Hefft, H. (1988). Affordances of children's environments: A functional approach to environmental description. *Children's Environments Quarterly*, 5(3).
- Hefft, H. (2001). *Ecological psychology in context: James Gibson, Roger Barker, and the legacy of William James's radical empiricism*. Mahwah, NJ: L. Erlbaum Associates.
- Kahn, P.H. Jr. & Kellert, S.R., (Eds.) (2002). *Children and nature. Psychological, sociocultural, and evolutionary investigations*. Cambridge, MA: MIT Press
- Kouvela, E., Hernandez-Martinez, P. & Croft., T. (2018). “This is what you need to be learning”: an analysis of messages received by first-year mathematics students during their transition to university. *Mathematics Education Research Journal* 30, pp. 165–183. <https://doi.org/10.1007/s13394-017-0226-2>

¹⁸ Wilson 1984, p. 2

- Kunttu, K., Pesonen, T. & Saari, J. (2016) Korkeakouluopiskelijoiden terveystutkimus. [Ylioppilaiden terveydenhoitosäätiön tutkimuksia 48] Online publication. https://1285112865.rsc.cdn77.org/app/uploads/2020/01/KOTT_2016-1.pdf
- Ojanen, M. & Liukkonen J. (2017). Liikunta ja psyykinen hyvinvointi. In T. Jaakkola, J. Liukkonen & A. Sääkslahti (eds.), *Liikuntapedagogiikka*. 2.uudistettu painos. (pp. 215-233). PS-kustannus, Jyväskylä, Finland.
- Parikka S, Holm N, Ikonen J, Koskela T, Kilpeläinen H & Lundqvist A. (2021). KOTT 2021 - tutkimuksen perustulokset. Online publication. www.terveytemme.fi/kott.
- Polvi, S. & Telema, R. (2010). Liikunnan sosiaalinen merkitys. In I. Vuori, S. Taimela & U. Kujala (eds.), *Liikuntalääketiede*. 3.–4. edition (pp. 628–638). Kustannus Oy Duodecim, Helsinki, Finland.
- Prashnig, B. (2000). *Erilaisuuden voima: Opetustyylit ja oppiminen*. PS-kustannus, Jyväskylä, Finland.
- Prashnig, B. (2006). *Eläköön erilaisuus: Oppimisen vallankumous käytännössä. Paremman elämisen, oppimisen ja työskentelyn opas*. 4.th edition PS-kustannus, Jyväskylä, Finland.
- Sahlin, E., Matuszczyk, J. V., Ahlborg, Jr. G. & Grahn, P. (2012). How do Participants in NatureBased Therapy Experience and Evaluate Their Rehabilitation? *Journal of therapeutic horticulture*, 22(1), pp. 8–22.
- Salonen, K. (2020). *Kokonaisvaltainen luontokokemus hyvinvoinnin tukena*. [Doctoral dissertation. University of Tampere] Tampere University dissertations 253. <http://urn.fi/URN:ISBN:978-952-03-1563-4>
- Siljander, P. (2002). *Systemaattinen johdatus kasvatustieteisiin*. 2nd edition. Otava, Helsinki, Finland.
- Vuorinen, R. (1990). *Persoonallisuus ja minuus*. WSOY, Helsinki, Finland.
- Wilson, E.O. (1984). *Biophilia*. Cambridge, MA: Harvard University Press.

