Learning Beyond Walls

An Assessment of Demand, Opportunities and Boundaries of Outdoor Education at Wageningen University

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Academic Consultancy Training - Team 3561

Our team consists of 6 MSc students at Wageningen University and Research, with various backgrounds.

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Executive Summary

This project aimed to investigate the wants, needs and motivations of students and educators at WUR regarding outdoor education. For this purpose, we interviewed relevant stakeholders and interested individuals, conducted a survey with over 300 responses, provided detailed observations of the current value and boundaries of locations on and around Wageningen Campus, and conducted a literature review on the benefits and challenges of outdoor education.

Both interviewees and survey respondents showed a massive and almost unanimous positive take on the possibility of outdoor education.

Having shown this demand, we recommend Facilities & Services to use the current infrastructure to develop a range of locations which all suit a part of the demand of educators and students (ranging from a natural secluded setting, such as the Droevendaalse Bos, to a place for large groups in the Field of the Wageningen Student Farm).

A future ACT team could look at the possibility of creating a rewilding project with an outdoor education site in mind as final product, combining the innovative research on WUR with the future of facilities and education.

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1. Introduction

1.1 Context and Multi-perspective Problem Analysis

1.1.1 Background & Context

Wageningen Campus, designed according to the university's Green Vision (WUR Facilities & Services, 2019), is recognized internationally for its sustainability and innovative landscape design. The Green Vision is a formalized plan on green space on Wageningen Campus, based on core values such as sustainability and biodiversity. Any future development on campus must therefore align with, and ideally enhance, WUR's sustainability goals (WUR, 2025b). Outdoor education fits well within this context, supporting the university's mission to connect science, society, and the environment, whilst harbouring responsibility and sustainability as core values for its students (WUR, 2025a).

To determine the direction for education, WUR released the Vision for Education 2025. This report describes the mission to empower responsible change makers for science and society which includes three main dimensions (WUR, 2025c). First, that students have ownership of their own educational actions and development. This means that students are able to add meaningful value to their field of interest and are dedicated to both science and society. In Wageningen, the education process is an academic journey to help the student discover. Second, students should have a learning community that inspires through joint venture. Students should have a sense of belonging; a safe place to study and explore new ideas, with strong educational support (e.g., by teachers, researchers, professionals, or alumni). Third, it is also important for WUR that the curriculum is in touch with the outside world through disciplinary knowledge, academic growth, and staying open to outside knowledge.

Outdoor education has the potential to give students a safe learning space that fits within these three dimensions. It can facilitate and empower the student with its inherent tendency to create human-nature connectedness through embodied learning.

Outdoor education has been an upcoming method of education for the better part of the last decade. In pre-teen children it has been shown to reduce stress (Dettweiler et al., 2022) and a host of research shows that nature plays a role in coping with Psycho-Physiological issues (Corraliza et al., 2012; Berto, 2014; Wassenberg et al., 2015). In addition, outdoor education has also been linked to increased nature connectedness (Pirchio et al., 2021). These advantages prove outdoor education to be a strong educational and pedagogical tool at the disposal of educators.

The Facilities & Services department at Wageningen University & Research (WUR) has received increasing requests from faculty members to support outdoor education. However, the department lacked a clear understanding of what educators and students specifically require, to facilitate this form of learning. The commissioner, WUR Facilities & Services, is motivated to meet these needs if a clear demand is demonstrated, either by adapting existing infrastructure or developing new outdoor spaces.

1.1.2 Long-Term Goal of the Commissioner

The commissioner aims to adhere to the wants and needs of Wageningen Campus users regarding outdoor education. The long-term vision is to foster an environment that supports flexible, inclusive, and sustainable outdoor learning opportunities, if this satisfies the demand from the WUR community.

1.1.3 Broad Problem Definition

WUR Facilities & Services lacked a clear understanding of the needs and expectations of educators and students regarding outdoor education, as well as insight into the value of the campus infrastructure for this purpose. Addressing this knowledge gap required a multi-perspective analysis:

Educational perspective: Nature-inclusive teaching methods have become increasingly popular at WUR. Understanding the role that education plays in shaping, creating, and transforming human-nature relationships is very important for this. Creating an outdoor environment that facilitates this learning is important not only to better understand how these relationships are formed, but also how beneficial they can be in creating a deeper understanding of one's study program. Education in a natural environment has been proven to contribute to academic development of students, through increased student engagement and greater ownership of their own learning process (Mann et al., 2022).

Social Perspective: The university environment plays an important role in shaping students' experiences and their ability to cope with the demands of daily life (Menardo et al., 2024). Studies show that meaningful social connections positively influence relationships and personal development (Gravett & Winstone, 2020). Outdoor learning environments often encourage these connections, fostering students' connections to each other and to nature (Preston, 2004).

Psychological Perspective: Research by Dettweiler et al. (2022) and Berto (2014) shows that outdoor environments can significantly reduce stress. Fully understanding the psychological benefits of outdoor education will help define clear goals and strengthen the case for investing in appropriate facilities.

Economic Perspective: Current budget constraints limit large-scale investments. While cost-effective solutions are preferable, higher investments may be justified if a genuine educational demand is proven and met by adding new infrastructure. It should be stated that any new outdoor education space is probably significantly cheaper than creating new indoor facilities.

Ecological Perspective: In line with WUR's Green Vision (WUR Facilities & Services, 2019), any new infrastructure must have a net-zero or positive impact on biodiversity. The addition of this new outdoor education could in some cases negatively impact local biodiversity. However, outdoor learning has been proven to increase human-nature connectedness. Students that have formed this bond will continue to include and value nature in their decisions for the rest of their lives. This is of large ecological value and should not be forgotten when discussing this perspective (Braun et al., 2017).

Infrastructure & Operations Perspective: Wageningen Campus is already highly utilized, hosting numerous buildings, events, and functions. Integrating outdoor classrooms must therefore balance space efficiency, safety, and accessibility regulations.

If these perspectives are not carefully integrated, the university risks implementing solutions that fail to meet users' needs, or compromise ecological and spatial sustainability.

1.2 Project Problem Definition

The problem for this project was that WUR Facilities & Services had not yet fully understood the wants, needs, and motivations of potential users (e.g. teachers, students). They also did not have accurate information about the value and functions of outdoor classrooms on campus, as well as the types of outdoor classrooms relevant to the Wageningen Campus area.

The idea of outdoor classrooms must add value to the Green Vision and Vision for Education of Wageningen University and Research, transforming the campus into a mission-driven ecosystem that is more sustainable and climate-resilient. This also gives students the chance to develop their personal growth and learning community within an updated curriculum that connects to the outside world. Therefore, the outdoor classroom serves not only as a means of connecting users through outdoor facilitation but also as inspiration to users, aligning with the Green Vision and Education Vision of Wageningen Campus.

To address this condition, the knowledge gap needed to be bridged ensuring that the outdoor classroom is not only a formal, rigid facility but also adds value to Wageningen Campus as part of its reputation as a sustainable campus.

1.3 Integrative project purpose and research questions

The purpose of this project was to contribute to the knowledge on outdoor education at WUR by finding out the wants, needs, and motivations of stakeholders, and finding possible solutions by integrating this with the current possibilities that WUR is able to offer. Our contribution to addressing this knowledge gap was to conduct quantitative & qualitative research to find out the wants, needs, and motivations of stakeholders.

The main question that we wished to answer was:

What are the possibilities and benefits of Outdoor Education around Wageningen Campus that fit within the limitations and address the wants and needs of stakeholders?

To answer this question, we set up 4 guiding questions:

1. What are the limiting factors to outdoor education at WUR?
2. What are the facilities that are already in place on and around campus?
3. What are the wants, needs, and motivations of the stakeholders?
4. Is there anything else needed to address the wants and needs of the stakeholders, that is not currently in place at the WUR?

1.4 Structure

The report adheres to the following structure to answer the research questions. First, the existing literature on outdoor education is studied. Afterwards, all regulatory and practical boundaries are addressed which are present on WUR and the surroundings. Then, a theoretical framework is developed to provide a comprehensive understanding of the respondents' wants, needs, and motivations as a basis for interviews, surveys, and observations. It continues with, the methodologies are described to gather the locations, interviews and survey data and process them. These are then presented in a results section. The report will discuss the findings and base a conclusion on this. Lastly, we list our recommendations on how to (continue to) implement outdoor education at WUR.

2. Literature Review

2.1 Outdoor Education: Context and Definition

2.1.1 Context

Education as we understand it today has a strong focus on learning outcomes that centre the student, foster critical thinking, and prepare the student for 'real-world' challenges. However, the increasingly urban, industrial, and technological environment that we find ourselves in has shaped education to take place indoors (Goldman & Alkaher, 2023). This shift has prompted a growing call for outdoor education, driven by increased environmental concerns and the recognition of the value that direct experiences with nature have (Mannion & Lynch, 2016).

This change can be traced back to the arrival of progressive education at the turn of the 20th century, with the introduction of educational psychology (Meyer & Seaman, 2021). Progressive education's aim was to improve society during a time of great social change. Influential educational psychologists like John Dewey and Kurt Lewis advocated for education to move away from the more traditional, classical top-down education, towards a more student-centred, experience-based approach. This approach was new, as it valued experiences and student agency (Meyer & Seaman, 2021).

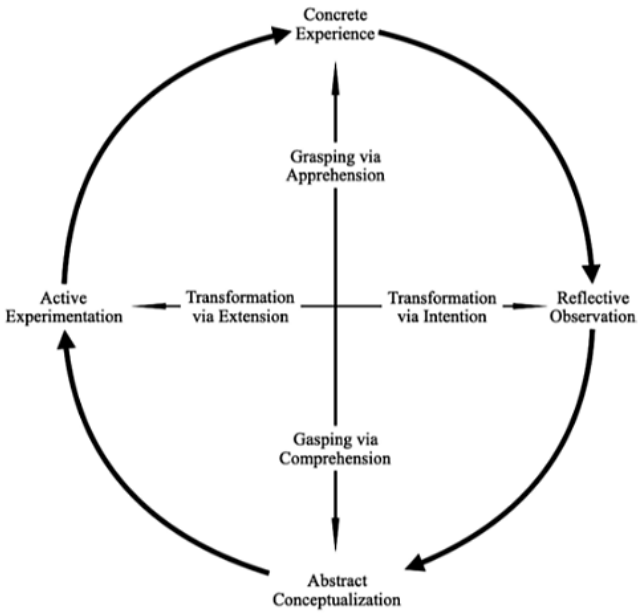

Figure 1: *Kolb's experiential learning cycle, from article*
Source: (Meyer & Seaman, 2021)

From this movement, the concept of experiential learning emerged. Experiential learning is, in its essence, learning through doing. Its central components are experiencing => reflecting => learning (Meyer & Seaman, 2021). The most popular understanding of experiential learning based on Kolb's four stage cycle (see figure 1), who based his framework on ideas from Dewey, Lewin, Piaget, Jung, and Vygotsky (Meyer & Seaman, 2021).

The model describes a cycle of learning, which starts with concrete experience, followed with reflective observation, abstract conceptualization and then active experimentation, which then again leads into concrete experience, and the cycle repeats. This model has long influenced outdoor education, forming the basis of one of its most widely adopted approaches (Meyer & Seaman, 2021).

Though Kolb's model is popular within the experiential learning field, it has been critiqued for perpetuating the doing/thinking dichotomy and falsely interpreting the source material (Meyer & Seaman, 2021). Fenwick (as cited in Meyer & Seaman, 2021) expands on this by identifying five perspectives on how learning occurs: (1) constructivist: the most popular, learning being facilitated by a direct lived experience and reflection, (2) psychoanalytic: learning exists and is created between the conscious and unconscious, (3) situative: learning is rooted in situation, (4) critical cultural: learning highlights how power imbalances shape experience, (5) enactivist: cognition arises through interaction between the learner and the environment. This more holistic understanding of learning as not just a linear constructivist process starts leaning more towards how WUR views education should be (WUR, 2025c).

Relational learning is understood as learning that is facilitated through relationships, bringing a social aspect into experiential learning. It brings the cognitive, physical, and affective together (Morrison & Chorba, 2015; Arts et al., 2025). It emphasizes the importance of relationships between students and between the students and teachers, and, in the context of outdoor education, between students and the non-human world (Morse et al., 2018 & 2021; Wattchow, 2021). The importance of these relationships lies in the opportunity they create for participants to learn from one another through shared experiences, allowing them to create a desired learning/teaching environment. By facilitating relationships and bringing together multiple perspectives, relational learning inherently undermines dichotomies which can so often be present in more traditional forms of outdoor education (e.g. doing/thinking, human/nature) (Morrison & Chorba, 2015; Fugate et al., 2021; Arts et al., 2025). It recognizes that learning is a dynamic, co-created, and contextual process, and that these relationships are mutually beneficial (Morrison & Chorba, 2015). Creating an understanding that there is inherent value in not only oneself but also in the other, from both the human and non-human world (Morse et al., 2018 & 2021).

2.1.2 Definition

Outdoor education can be defined in many different ways. Recent literature has been trying to find a holistic definition, whose roots can be traced back to Donaldson & Donaldson (1958). They define outdoor education as education that can be explained in terms of the perspectives 'in', 'about' and 'for'. 'In' refers to education taking "place" in the outdoors, meaning that the learning environment is located outside of the classroom. 'About' means that the "subject" to be studied is connected to the outdoors. Educators do not reject the idea that some outdoor topics can be better taught indoors, but they believe that learning about the outdoors is incomplete and often feels boring if the entire learning experience is confined indoors (Donaldson & Donaldson, 1958). Lastly, 'for' means that the outdoors should foster a "positive attitude" towards nature. This implies that both the student and the environment benefit from this interaction. This requires a certain attitude towards the environment, supported by the development of skills learned from the 'in' and 'about'. Neither skills nor attitude are the complete picture, they are meaningful because they work together (Donaldson & Donaldson, 1958).

Other scholars have positioned outdoor education either as a 'subject' or 'methodology' as mentioned by Potter & Dyment (2016). When viewed as a 'subject', outdoor education needs a specifically defined body of content like that of other subjects, such as mathematics, physics, or the social sciences. From this perspective, outdoor education can be closely compared to environmental education. However, we feel that outdoor education should be seen as a 'methodology', instead of a subject, as a way of approaching learning. One that emphasizes pedagogy and interdisciplinary approaches that transcend traditional boundaries of subjects (Potter & Dyment, 2016). Another, simpler definition of outdoor education has been put forward by Lewis (1975), who stated that outdoor education is a learning method that relies on the senses.

Literature does not offer a single, straightforward definition of outdoor education. Because of this, we aim to formulate our own definition that fits best within WU. We identify the core elements of outdoor education to be place, content, learning process, subject, and feedback to student, teacher and nature. Therefore, in our context, outdoor education can be defined as:

A combination of relational and experiential teaching methodologies that takes place in an outdoor, natural setting that fosters positive, ethical, and reciprocal relationships between humans and the natural environment.

In the context of WUR, our reason for choosing this definition is to provide guidance on the aforementioned definitions including outdoor education as a methodology, while including the 'in,' and 'for' perspectives. We felt that it was better to choose this approach, to include the possibility of extending outdoor education to all disciplines. This definition is broader and increases flexibility for all types of study programs.

2.2 Outdoor Education: Benefits and Barriers

This sub-section explains the benefits and barriers to implementing outdoor education. The benefits of outdoor education include personal well-being, enhanced social development, and the ways nature supports academic success. However, barriers also need to be considered. Generally, there are two types of barriers: those that depend on the university's educational management and those related to environmental challenges and unforeseen weather changes. This list of benefits and barriers is shown in Table 1.

Table 1: *Benefits and Barries of Outdoor Education*

Benefits	**Barriers**
Psycho-physical wellbeing and mood	Institutional and managerial limitations
Personal Development and Self-perception	Lacking Capacities
Academic and Learning Outcomes	Different Visions on Education
Social development/cohesion	Lack of Facilities
	Ecological Disturbance
	Weather Conditions

2.2.1 Benefits

Outdoor education offers cognitive, emotional, and social benefits (Pirchio et al., 2021). Experiential and embodied learning strengthen practical understanding by engaging sensory, physical, and cognitive processes, often resulting in improved analytical thinking, creativity, and knowledge retention compared to traditional classroom-based learning (Fugate et al., 2018; Arts et al., 2025). In outdoor contexts, relational learning adds to these benefits by facilitating connection, empathy, and care. Through reflective dialogue, perspective taking, and shared meaning-making, relational learning can encourage students to adopt multiple viewpoints and form deeper interpersonal and environmental connections (Gravett & Winstone, 2020; Fugate et al., 2021).

Teachers, specifically at WUR, also perceive significant benefits from relational outdoor education, including stronger emotional engagement, long-term sustainable thinking, personal empowerment, and a heightened sense of connection with the non-human world (Arts et al., 2025). Engaging the affective is considered to be essential for environmentally responsible action; understanding environmental issues alone does not lead to meaningful, long term behavioural change. Outdoor education also supports student well-being. It does this by reducing stress and stimulating curiosity (Neill & Richards (1998), factors that then contribute to an improved academic performance.

An important concept that keeps returning in outdoor education literature is human-nature connectedness, defined as an individual's perception of their connection to the non-human natural world (Pirchio et al., 2021). A strong sense of human-nature connectedness has been shown to enhance psychological wellbeing and resilience to stress, contribute to pro-social behaviour and empathy, and promote positive environmental behaviours, which will be expanded on in the next section (Pirchio et al., 2021). Research indicates that participation in outdoor programmes, especially when they provide direct contact with natural, green environments, is associated with higher connectedness to nature (Pirchio et al., 2021).

Psycho-physical wellbeing and mood

There is extensive literature on the connection of contact with nature with improved psychological health and well-being (Pirchio et al., 2021). Natural environments, as opposed to urban settings, are more effective at reducing negative moods and enhancing positive moods (Berto, 2014; Pirchio et al., 2021). Natural environments are also good for recovering from stress and mental fatigue. Mood and cognitive performance are crucial factors in education, because when students feel stressed or are in a negative emotional state, their ability to learn and pay attention is impaired (Menardo et al., 2021). Outdoor education promotes health and psychological wellbeing, in turn enhancing students' capacity to engage with learning (Berto, 2014). Natural spaces function as restorative environments, providing spaces that allow individuals to renew personal adaptive resources to meet daily demands (Berto, 2014). When students are overloaded with technology and an increased study load, they report lower levels of perceived restorativeness. However, students who report higher perceived restorativeness also tend to have a better psycho-physical well-being (Menardo et al., 2024). Human-nature connectedness plays an important role in these psychological benefits, being linked positively with psycho-physical well-being (Pirchio et al., 2021).

Personal Development and Self-perception

Outdoor education also facilitates personal growth and development. On average, outdoor education programs and human-nature interactions have a positive impact on participants' self-perception, autonomy, self-efficacy, and overall satisfaction (Neill & Richards, 1998; Menardo et al., 2024; Pirchio et al., 2021). Increased connection with nature has also been linked with eudemonic well-being. Neill & Richards (1998) also state that these benefits are not just felt during and right after the program, but that they often trigger an ongoing cycle of personal growth, with positive effects likely increasing or at least maintaining further into the future.

Academic and Learning Outcomes

Beyond personal development, outdoor education has been shown to support academic success. It enhances student competencies, promotes sustainable lifestyles, and facilitates learning in ways that connect students to the environment (Goldman & Alkaher, 2023). It has also been shown to lead to increased performance on cognitive tests (Menardo et al., 2024).

Social development/cohesion

Outdoor education promotes interpersonal connections among students and between students and teachers, fostering collaboration, support, empathy and social cohesion (Gravett & Windstone, 2020; Pirchio et al., 2021). It strengthens social, emotional, and cognitive development by creating a more interactive, supportive, and collaborative learning environment.

2.2.2 Barriers

Outdoor education also faces several barriers that must be overcome. These barriers can be system-specific in education, meaning that education systems lack adequate capacity to support outdoor education. This can be due to differences in educational management, capacity or the availability of facilities. Furthermore, outdoor education also faces environmental challenges, particularly in understanding the extent to which humans can cause environmental disruption and cope with weather-related disturbances.

Institutional and managerial limitations

Institutional barriers often arise because outdoor teaching requires campus security, permits, and administrative processes. This is primarily to protect students from the potential risks of learning outside the classroom (as indoor classrooms are designed as safe learning spaces in terms of facilities and learning approaches). Therefore, highly motivated teachers must overcome various institutional obstacles to implement outdoor education. These challenges can slow the implementation of outdoor education initiatives and prevent teachers from developing adequate spaces for innovation. In Dutch universities, the barriers to this might stem from a lack of incentives from decision-makers, as they are disconnected from the natural environment (Arts et al., 2025).

Furthermore, literature shows that budget constraints can be a barrier, as outdoor learning tends to incur additional costs (e.g., transportation, equipment, and additional staff) (Hanna, 1992; Waite, 2020). The potential additional costs for outdoor education may be a concern, particularly if the activity is conducted in a remote location outside campus (Waite, 2020). The funding infrastructure, especially at WUR (using the Brascamp model), and the complexity of changing a program's plan have also brought challenges to implementing outdoor education (Arts et al., 2025). Since universities already have adequate facilities, convincing students to invest in outdoor education is a

challenge, especially in a four-season country like the Netherlands, where each season requires different facilities, weather considerations, and ecological disturbance.

Lacking Capacities

Beyond the need for additional facilities, teachers' ability to implement outdoor learning and students' adaptability will determine the success of the learning process. Clear training and guidelines are crucial for teachers when deciding to use outdoor education facilities, as they are appropriate for outdoor settings (Thorburn & Allison, 2010; Waite, 2020). Teachers lack time management, knowledge of lecturing in outdoor settings, and relevant skills (Arts et al., 2025). More specifically, the development of curricula and pedagogies now is based on sustainability principles in higher education, so this presents a challenge for the campus to address the 'unsustainable' culture in outdoor education is needed (Lugg, 2007). The program should include a strong component that focuses on the teachers' training, experience, and confidence in delivering lectures outside the classroom (Hanna, 1992). The safety components for each program should be kept in mind (e.g., supervision, equipment, personnel, instruction, etc.) to ensure that safety activities are also for students' benefit and to reduce the potential consequences of outdoor risk (Hanna, 1992).

Different Visions on Education

This obstacle was encountered among teachers (who provide the learning process), students (who receive the learning process), and educational institutions (universities, which organize educational services). The inability to integrate outdoor learning into the curriculum also raises concerns regarding the value of outdoor education (Waite, 2020). One group may view outdoor education as an innovation that enriches learning methods. In contrast, another group may view outdoor education as not meeting the requirements for academic success (with a stronger reliance on formal classroom achievement). The focus of management is too heavily on comparing metrics in rankings and evaluations due to a neoliberal tendency (Arts et al., 2025).

Lack of Facilities

Another challenge is the lack of facilities as a supporting element of the learning process. Not all schools have adequate outdoor learning areas, particularly universities in large city centres. Even though the WUR campus also has many outdoor spaces, the long-term vision for facility availability needs to be considered. Facilities such as toilets, seating, electricity, and the surrounding environment (e.g., noise from nearby roads) pose challenges for universities. Unsuitable physical conditions make outdoor learning less practical, especially in sessions that require specialised equipment (e.g., laboratory exercises) and long learning durations.

Transportation availability will also be a concern. Transportation can be expensive, take a long time, and may make a space less accessible to some students (Hanna, 1992). Also, if travel time limits possibilities for outdoor education, creative scheduling needs to be discussed to avoid these time barriers (Hanna, 1992). However, at WUR, outdoor

learning is very feasible because its geographical conditions are relatively suitable for creating an outdoor learning environment.

Ecological Disturbance

While exposure to nature allows students to better understand and appreciate it, educational activities in nature can also have negative impacts. There is a potential for environmental disruption. Although students and teachers were previously allowed to roam from the path in outdoor spaces, this is no longer permitted due to the risk of environmental disruption. This risk is thought to depend primarily on the size of the educational group. Therefore, this factor needs to be taken into consideration.

The perception of human activities in nature is generally perceived as a detriment to the natural environment. Loss of biodiversity is one of the most significant modern ecological catastrophes considered by ecologists. A study by Sauvajot et al. (1998) showed that human activity is the direct cause of habitat alterations, including vegetation height, woody species richness, and woody cover. In particular, small mammals showed a strong response to changes in vegetation structure.

Nowadays, this relationship is studied more extensively, leading to a more nuanced understanding of human effects. A study by Pautasso (2006) showed that the negative correlation between human density and species richness can occur at very local scales. However, because of the rich mosaic of habitats and microenvironments created by human presence, species richness tends to correlate positively with human density at larger scales (Pautasso, 2006). The idea that humans can only negatively affect nature is therefore a relic of the old view of ecology.

Weather Conditions

Weather conditions are one of the major obstacles to outdoor education, especially in the Netherlands, a country known for its rapidly changing and unpredictable weather. Conditions such as sudden rain, strong winds, and drastic temperature changes can occur during outdoor education activities. These natural disturbances are largely uncontrollable and can cause discomfort for students and teachers during teaching and learning activities. Close monitoring of these risks and development of potential (basic) infrastructure to limit the influence of weather, is necessary to ensure students' safety, health, and overall safety.

3. Boundaries for outdoor education

This section focuses on boundaries to outdoor education, both on municipal and WUR level. This role is considered because the municipality is involved in almost all new construction, providing permits and advice. In addition, the WUR has several guideline documents regarding what happens at campus. These encompass the goals of WUR regarding the use, appearance and impression of the campus. Both sets of rules and regulations will be further explained in the relevant paragraphs in this section. An overview of boundaries for outdoor education at Wageningen University is described in table 2.

Table 2: *Boundaries for outdoor education*

Boundaries	
Boundaries on municipal level	Permits
Boundaries by WUR guidelines and regulations	Masterplan Wageningen Campus
	Vision for Education
	Green Vision
Practical Boundaries	Vandalism
	Reservability
	Accessibility

3.1 Boundaries on municipal level

The WUR has a good understanding with the Wageningen Municipality. During construction of the new campus, some arrangements were made so that not every single landscape modification (e.g. a single handicapped parking space) requires completely new permits from the municipality.

However, in the case of larger or more sensitive changes, these permits must be acquired. This is done by the employees at Facilities & Services. In case of outdoor education, the most relevant and necessary permit is an “omgevingsvergunning”. This would have to include several details about construction and intended use. For any construction that would be used to create locations for outdoor education, this permit is needed.

A secondary boundary is the use of amplified sound for speakers, which would also entail acquiring a different set of permits regarding amplified sound. However, all locations we identified are small enough to be used without sound amplification, and all outdoor education will take place during the working hours at WUR. Therefore, we do not expect sound permits to be necessary while developing outdoor education spaces.

The Field is an exception to some of these regulations, given the fact that the WUR has more freedom with respect to which activities can be done there. The Field is classified

as a living lab, where a sustainable and green space is achieved by the collaboration between (WUR) experts. This means that any outdoor education wouldn't need new permits, as small-scale interactive education is already in the plan for the area usage. Any permanent structures are not allowed to be built, but temporary structures which are removable can be used and stored in the shed or caravan.

For any future developments at the Field a "user agreement" is needed, which can be acquired via the WUR Facilities & Services.

3.2 Boundaries by WUR guidelines and regulations

3.2.1 Masterplan Wageningen Campus

One of the most influential sets of documents regarding Wageningen Campus is the Masterplan Wageningen Campus. It consists of four different documents, which together form the legislative and spatial planning and the mindset regarding the usage and appearance of the campus.

The main boundaries which are relevant to outdoor education are found in the "regels bestemmingsplan" and the "toelichting bestemmingsplan". The former file or the "bestemmingsplan" is the permit dictates all the rules that legally bind the construction on Wageningen Campus. The latter file is the complete explanation of the plan for the Campus, including regulations, but also explaining the structure for water, gas, architecture and ecological corridors.

The relevant boundaries from the Masterplan are encompassed the combination of the municipal boundaries, as the "bestemmingsplan" is approved by the municipality as well. The boundaries within this area have been discussed on the previous page. Most other rules, regulations and visions are written in the Wageningen University Vision for Education (WUR, 2025c) and the Green Vision for Wageningen Campus (WUR, 2019) and will be explained in the remainder of this section. If any new construction were to take place regarding outdoor education, it must be ensured that these plans are in accordance with the Masterplan Wageningen Campus.

3.2.2 Vision for Education

The Wageningen University Vision for Education (WUR, 2025c) provides an extensive overview of the organisation's ideas for the future of education, and describes the values of WUR with respect to its educational role.

The development of opportunities for outdoor education on and around Wageningen Campus can contribute to several of the goals that WUR sets in their Vision for Education. Firstly, the more interactive setting, that is seen as an important element of outdoor education, creates a socially safe learning environment, with mutual trust among students and between students and teachers. This also contributes to the learning experience as a partnership (where teachers and students can help each other develop),

and invites more extensive dialogue, also on students' relation with nature. Small-scale education is seen as one of the strong features of education at Wageningen, with intensive contact and interaction between students and lecturers. The practicalities of audibility in outdoor education also mean that this education will often take place in smaller groups, which facilitates the interactive approach that WUR is praised for.

Furthermore, the availability of spaces for outdoor education contributes to the rich and flexible palette of education arrangements that WUR strives for. This pushes the boundaries of learning beyond the regular classroom; outdoor education can produce a form of integrative knowledge and experience-based learning that contributes to WUR's goal to increase transdisciplinary education.

Lastly, the Vision for Education mentions the importance of student well-being and its link to study success. As described in the literature, improved student well-being is one of the main effects that have been demonstrated to increase during outdoor education.

3.2.3 Green Vision

The Green Vision for Wageningen Campus (WUR, 2019) formulates the plans for further development of green spaces on the campus, and describes the principles that are followed in this development.

The Green Vision prescribes that areas on campus (with the exception of The Field and the nature gardens at Lumen and Atlas) should be set up as "nature for the public space". The biodiversity here should be robust and with a wide variety of species, while fitting the functional requirements of the area. This same would apply to areas used for outdoor education; nature and biodiversity should be taken into account as much as possible in these areas, while ensuring that the functional educational use remains possible. This also fits with the role of WUR as a pioneer in the field of nature-inclusive spatial development, representing the expertise that is present within the WUR community.

In line with the Green Vision, the development of spaces for outdoor education on Wageningen Campus should be in accordance with the cultural and historical nature values of the campus area. However, this does not exclude the potential for adaptations if this is strongly suggested and supported by new ideas and sound arguments. Any spatial interventions must account for the nature conservation act (which prescribes a nature value for major spatial changes) and other legislation.

Outdoor education on Wageningen Campus can strongly contribute to the mission for the campus ecosystem, to facilitate (literally) working and studying in the domain of the healthy living environment. The campus itself is in this way used as an educational resource, not only on the practical level of outdoor environmental education (e.g. identifying flora and fauna in the campus's nature gardens), but also within the the larger issues of human-nature relationships.

3.3 Practical boundaries

3.3.1 Vandalism

Several structures on Wageningen Campus have been subject to vandalism throughout the past years. To combat this, most public infrastructure on campus recently has been constructed from concrete and hardwood. Any infrastructure which is added to the campus should have the same structural integrity, which can form a challenge with respect to our ambition to create green, natural spaces for outdoor education.

3.3.2 Reservability

There is a duality between creating reservable spaces and leaving the space open for spontaneous meetings or informal gatherings. A case can be made for wanting to reserve a certain location for a lecture, ensuring that no other groups are present. However, it would also be valuable if the location could be used by students when there is no educational activity. This trade-off should be considered per location; the amphitheatre is an example of a reservable space, but the Field may house several groups at the same time without issues.

3.3.3 Accessibility

Accessibility to physically disabled students is a challenge within the development of outdoor education spaces. Many educators wish for an education space that is relatively far from human influences, which by definition makes these locations more difficult to reach. Therefore, we recommend to not focus on making all locations reachable for physically disabled students, but we ensure that there is a range of options, including some spaces that are more easily accessible. Then, we recommend that, whenever needed, teachers discuss on a case-by-case basis with the student what their options are and how the education can best be shaped to fit their individual needs.

4. Theoretical Framework

To guide comprehensive location observations, interview structures, and survey analyses, a theoretical framework was designed to identify the contributions of outdoor education based on the motivations, wants, and needs of students, teachers, and WUR management. This framework serves as a foundation for examining on the added value of outdoor education within WUR's current education system.

To clarify the commissioner's vision of outdoor education, we apply the self-determination theory developed by Deci & Ryan (2012). Self-Determination Theory (SDT) is a theory about how the internalisation of motives into intrinsic motivation initiates activities that are interesting and satisfying, which influences cognitive, affective, and behavioural variables (Deci & Ryan, 2012; Cook & Artino Jr., 2016).

We use this theory as a baseline to explain how the students, teachers, and other stakeholder preferences to the outdoor education differ based on three needs: autonomy, competence, and relatedness. Autonomy refers to stakeholders' freedom of choice and the need to control their own lives. Competence refers to the need to effectively manage challenges successfully, and relatedness refers to the need for meaningful and supportive relationships.

Cook & Artino Jr. (2016) describe autonomy supported by choice, explanation/rationale, and acknowledgement of feelings; competence is fostered through achievable challenges and constructive feedback; and respect, caring, an inclusive environment, and security enhance relatedness. This theory tends to be more motivational than cognitive because it addresses energisation and the organisation of cognitive, affective, and behavioural variables (Deci & Ryan, 2013).

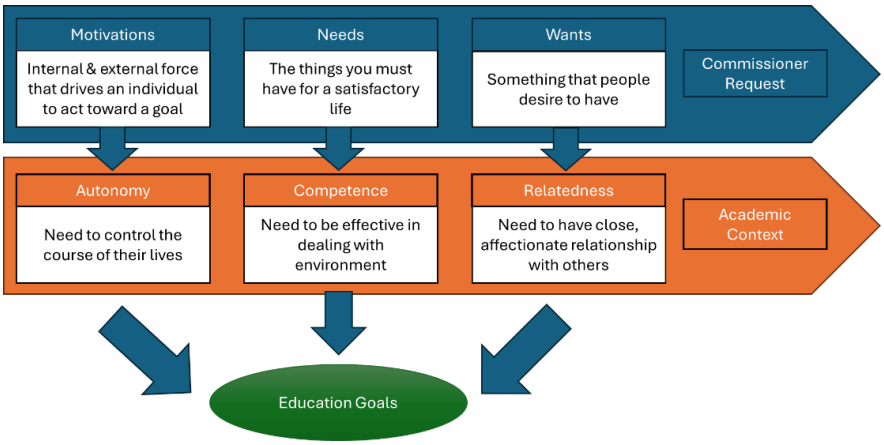

Figure 2: *The Relations between Commissioner Request and Academic Context for SDT Elements*

Figure 2 illustrates the commissioner's preferences to understand the motivations, needs, and wants of outdoor education at WUR through the lens of Self-Determination Theory. Within this flow, we examine each element in an academic context and identify appropriate metrics.

In the context of outdoor education, this theory is expected to intrinsically motivate students, enhancing creativity, resilience, and psychological well-being. With autonomy, students could make shared decisions, plan strategies, and navigate their journeys. Furthermore, competence—a sense of mastery, active feedback, and social skills—can be cultivated. Finally, relatedness is fostered when students actively engage with the environment, they are more likely to collaborate, communicate effectively, and work collaborately in real situations.

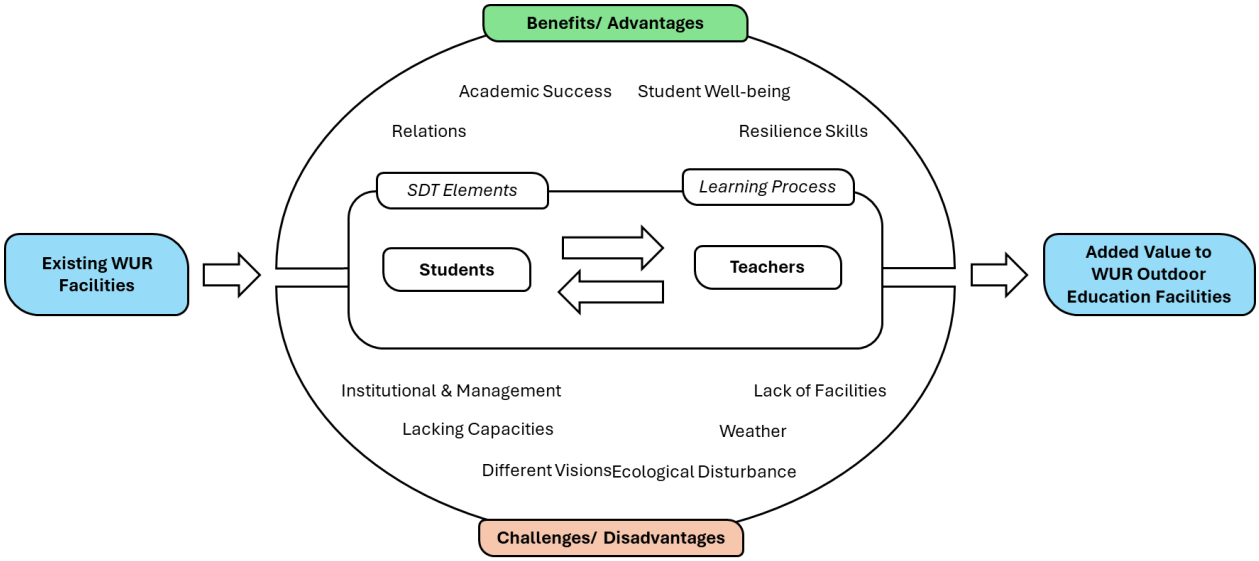

Figure 3: *Theoretical framework*

In figure 3, we outline how the development of outdoor education at WUR starts with assessing existing facilities, identifying benefits and challenges, and evaluating how outdoor education contributes to the WUR Vision for Education 2025 and Green Vision.

This project begins by identifying existing WUR facilities that could be used for outdoor education. This is to address RQ 2 by discussing the facilities already in place and around campus. Next, the benefits and challenges of outdoor education highlight considerations into outdoor education concept for WUR. We begin by identifying "wants, needs and motivations" of stakeholders (especially students - SDT motivation, and teachers - supplemented by questions regarding the learning process) to answer RQ 1. For RQ 3, we examine constraints factors of outdoor education based on the literature on benefits and barriers. Lastly, to address RQ 4, we provide recommendations for adding value to the existing WUR facilities for outdoor education.

Concerning of student learning processes in outdoor education, we have two key approaches are relevant. Relational learning provides insight into how students connect with each other and with nature. Experiential learning explains how learning occurs through direct experience. The combination of relational and experiential learning can be integrated into outdoor education, and it depends on the unique and the diverse programs offered at WUR.

The contribution of relational and experiential learning varies depending on study disciplines in WUR. Arts et al. (2025) discuss that WUR education encourages experimentation by allowing flexibility for different disciplines to work with outdoor education and see how to explore its implementation. At present, WUR has five departments: agrotechnology and food sciences, animal sciences, environmental sciences, plant sciences, and social sciences. The natural science and technology programmes (for example biology, plant sciences, animal sciences) tend to emphasize experiential learning approaches. In contrast, the social science program (for example international development, sustainable business and innovation) primarily emphasizes relational in its educational process. The combination of two learning processes is very crucial to be implemented in outdoor education and will enhances the educational experiences and educational development at Wageningen University.

5. Methodology

5.1 Locations

In order to answer our second research question, we created an overview of pre-existing and potential locations for outdoor education on and around Wageningen Campus. Our initial explorations were guided by recommendations which we received from the former WUR park manager Elike Wijnheijmer and our academic consultant Koen Arts. Throughout the project, we conducted three tours of the campus and its surroundings. The first two of these were focused on finding and examining the mentioned locations and looking for other potential sites. During the third tour, we visited a subset of locations with the academic advisor, who provided feedback on our findings and explained his experiences with teaching at this location.

To be able to compare locations we created a set of criteria to value all locations with. The criteria that were used were: Maximal group size, Accessibility, Noise level, Nature-Inclusiveness, Seclusion, Facilities, and Suitability for different kinds of education. Table 3 shows what is covered within each criterium.

These criteria were chosen based on a combination of the advice of the academic advisor, our own initiatives, and important points from the interviews. These criteria were used to create a score for each location, revealing the differences in a short overview. In the results section, we will discuss each location that was visited, providing an explanation of the possibilities and challenges that each location offers.

Table 3: *Criteria to assess outdoor education sites*

Criteria:	**Definition:**
Maximal group size	The maximum number of students which can be taught at the location at a single moment in time
Accessibility	How well is the location reachable, by either bike or foot, and specifically regarding physically disabled students
Noise level	How loud are the surroundings, and are there busy roads, loud machines or other noise generators present
Nature-Inclusiveness	How natural is the space, does it have large amounts of concrete or is it very green
Seclusion	How far is the space from other activities on campus or otherwise, is it likely people accidently interrupt the space
Facilities	Are there facilities present close by, toilets, storage facilities or bike parking
Suitable for what kind of education	This defines what we expect to be a possible form of education to suit a specific location

5.2 Interviews

In order to answer the research questions, a mixture of qualitative and quantitative research methods were used. The wants, needs, and motivations of stakeholders were discovered by qualitative semi-structured interviews. Semi-structured interviews are interviews with a predetermined set of topics and open-end questions, but with room for adjustment and further in-dept questioning (Fox, 2006). These semi-structured interviews are useful for measuring stakeholders' opinions on outdoor education. The goal was for this to be a small but diverse number of interviewees, based on the most important stakeholders identified in the proposal (teachers and students), to find in-depth answers and motivations. These interviews were guided by an interview guide, in which cues were used to help the interviewer and interviewee discuss all useful topics. Two separate interview guides were made, one for teachers and one for students. The full interview guides can be found in appendix 1 and 2.

Research environment and procedure

The interviews were conducted face-to-face in a quiet environment. This was done in rooms on the university, at offices of participants, or outside on campus. Also, some interviews were conducted online via MS Teams.

Participants and recruitment

The interview's research population is based on the stakeholder matrix (appendix 3). The goal was to interview the main stakeholders, and to interview people who actually have a well-founded opinion on the topic. To ensure diversity, the goal was to interview both female and male participants and to interview different types of stakeholders (students, teachers, etc.). This made it possible to investigate the influences of gender and role at university. Theoretical saturation was used to calculate the number of interviewees. Finding the participants' entire range of opinions is the aim of theoretical saturation. When an interview produces no fresh insights, you know that you have conducted enough interviews (Fox, 2006). Ten interview subjects were expected to be sufficient for this study. Eventually, nine interviews were conducted. The sample for the interviews was drawn from people accessible via the WUR channels and personal connections. Our academic advisor Koen Arts provided us with several interesting people to interview, and we found some students via Facebook and WhatsApp group chats. This can be seen as convenience sampling. Convenience sampling is a type of non-random sampling that includes members of the target population who satisfy certain practical criteria, such as ease of access, proximity, availability at a certain time, or desire to participate (Etikan, 2016).

Individuals were personally approached by the ACT team to participate in these interviews. Koen providing us with people to interview could also be seen as snowball

sampling. This is a non-probability sampling technique which increases the sample size by existing participants enlisting more participants (Goodman, 1961; Parker et al., 2019.)

Pilot study

Due to the limited time of this project, there was not a separate pilot study. The first interview, however, was extensively reviewed by the team in order to make the following interviews of higher quality.

Data analysis

The interviews were audio recorded and transcribed. Transcribing was done with the help of Turboscribe AI software which could transcribe the records. All transcripts were manually checked, improved and finalised. After transcription, the interviews were coded. Coding makes it possible to organise semi-structured data into themes and patterns, which can be analysed. The coding was done using ATLAS.ti software. The type of coding which was used is inductive coding. This means that the themes emerge from the data (Thomas, 2003).

The codebook can be found in appendix 4. The full transcriptions can be found in the additional interview transcriptions document.

5.3 Survey

In order to gain broader insights into the wants, needs, and motivations of the community of students and educators at WUR, we conducted a survey. The questions for this survey were based on the results of the interviews, and findings from literature. All survey questions are provided in appendix 5. In addition to functioning as an independent source of information, the survey also enabled us to compare these broader responses with the findings from our interviews. This comparison allowed us to assess whether the interview participants were representative of the wider WUR community, or whether their views differed from the general population.

Research procedure

The survey consists of 27 questions regarding various facets of outdoor education. When completing the survey, the respondents first had to indicate what their role at WUR is. If they indicated to be either a bachelor or master student they were linked to questions for students, while if they indicated to be any other type of role they were linked to the educators' line of questions.

The survey was opened on the evening of November 28th and was closed at 9:00 AM on December 4th, meaning that the survey was open for responses for approximately 6 days. In total, the survey received 339 responses. After removing incomplete entries and excluding responses that showed indicators of low data quality (such as straight-lining or excessively fast completion times), 307 responses were retained for analysis.

Not all questions were considered mandatory in the survey; only the demographic related questions had to be answered by respondents. This was done to give the opportunity for respondents to skip a question, if they either didn't understand the question or did not want to answer a specific question. During the analysis of the results, this led to different sample sizes for different questions. Some questions were only answered by educators or students, and not every educator and student answered each question. This means that the number of responses per question varies. For each figure, the number of responses is noted in the figure description.

Data analysis

The analysis of the data was conducted using a combination of RStudio (R Core Team (2020)) and Qualtrics Data & Analysis.

The Kruskal–Wallis test (Kruskal & Wallis, 1952) is useful for comparing multiple groups when the data are not normally distributed or are ordinal (ranked), which was the case for both our categories and the Likert scale we used in the survey. It works by converting the data into ranks and testing whether the groups differ significantly in their rank distributions.

The Dunn test (Dunn, 1964) is a useful post-hoc test after a significant Kruskal–Wallis result. It compares ranked differences between specific group pairs to identify which groups differ, while adjusting for multiple comparisons. It allows us to make a distinction between certain groups, providing a direct show of significance of a single element or category instead knowing a group is significant but not knowing who. This may be important later on, to specify recommendations.

6. Results

6.1 Locations

In this section, all locations considered during this project at Wageningen Campus and beyond are explained: what value do they provide in the current form, and what is the potential for development? To add some structure, we have chosen to cover all locations from the west to the east side of campus. We finalise with several locations outside of the formal Wageningen campus area, where we identified spaces either already suitable for or with potential for outdoor education.

Overall, the campus currently offers several viable spaces for outdoor education, with varying degrees of nature-inclusiveness and anthropogenic influence. The type of space that is needed differs strongly between educators (depending on both personal viewpoints and course content). We therefore believe that the best method for implementing outdoor education on campus is to create a set of several spaces that can be used for this purpose. These areas should encompass a wide range of possibilities. On the one hand, the campus and its direct surroundings should offer spaces with a lot of facilities, close to major campus buildings, in which educators can simply take their students outside without having to change the structure of their teaching. On the other hand, spaces should be available that are more distant from the busy campus life, fully natural and with limited human interference, where teachers and students can work towards rebuilding human-nature-relations in a more wild environment. A summarising overview of all locations can be found in appendix 6.

Table 4: *The different location on and around campus*

No°	**Location**
1.	The Farm
2.	The Prospect Site
3.	Field North of The Dassenbos
4.	Artwork corner by Aurora pond
5.	The Actio field
6.	The Amphitheatre
7.	The Living lab
8.	The Landschapstuin
9.	Lumen/Gaia nature garden
10.	The Droevendaalsebos
11.	The Food Forest
12.	Creative garden the Hoge Born
13.	The Leemkuil
14.	New Space

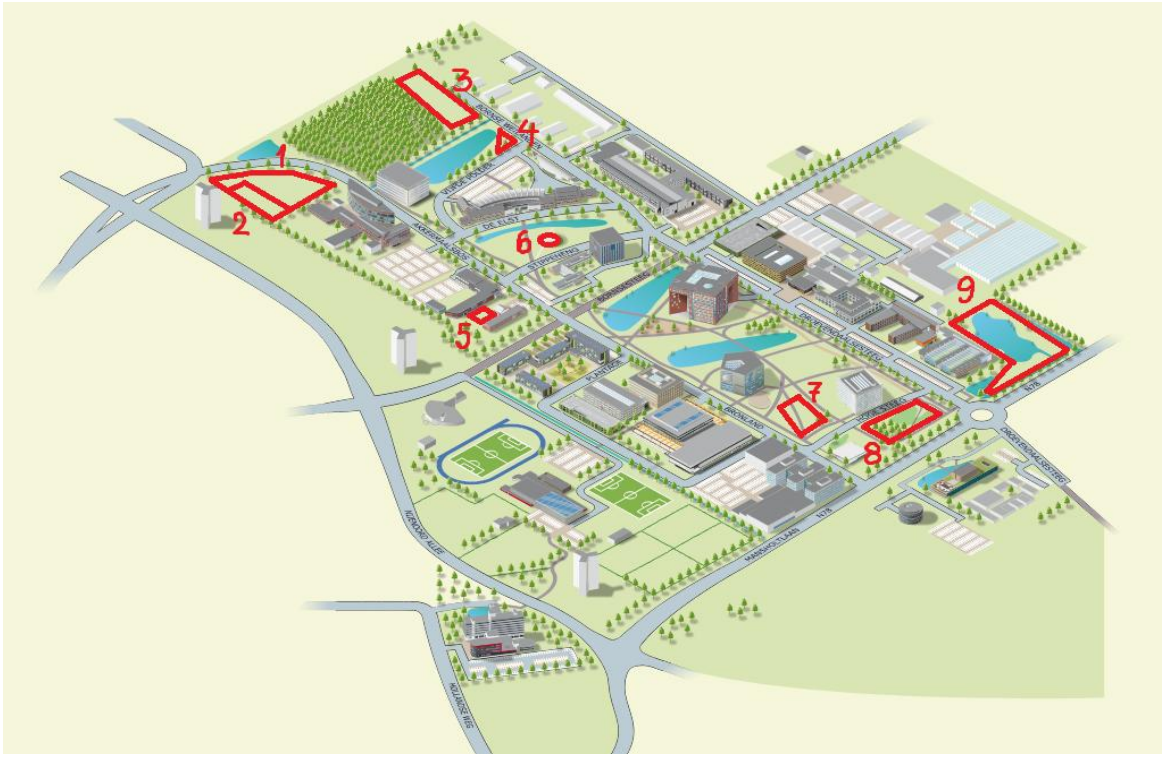

Figure 4: *Map of Wageningen Campus with numbered locations*

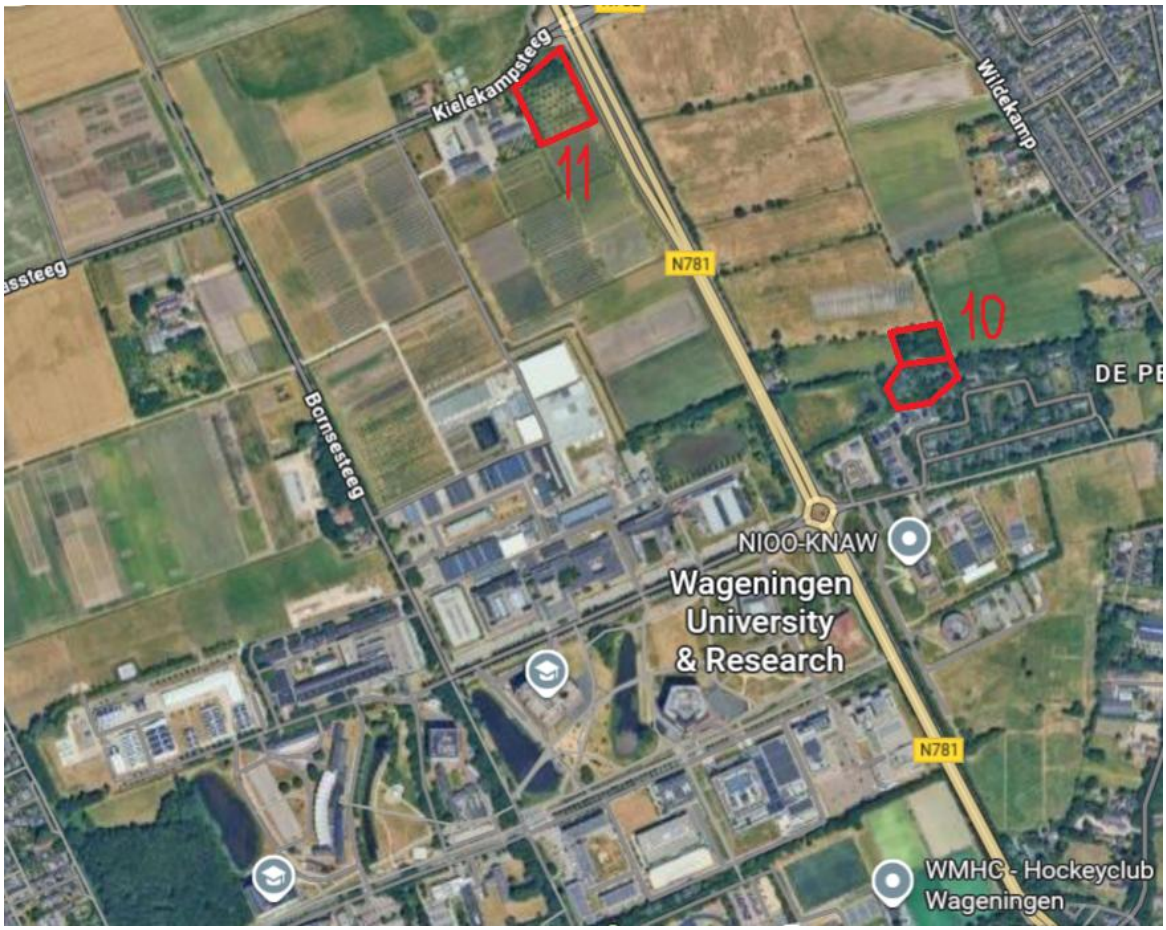

Figure 5: *Map of Wageningen Campus surroundings with numbered locations*

The Field (Wageningen Student Farm) (1 + 2)

Just southwest of the Aurora building lies the Wageningen Student Farm, also known as The Field. This area is located between the Vitae building, the northern edge of the Dijkgraaf flats and the bus lane, which runs around it. It is one of the final pieces of Wageningen Campus that is not yet fully exploited.

For this report we distinguish between two parts of the Field, which currently are used to different extents and in different ways: the Farm and the Prospect site. Both suffer from two general drawbacks; firstly, the tall Dijkgraaf building looks right into the Field. Secondly, the bus lane running around the Field is currently in transition to open road, which will probably lead to an increase in noise pollution once this road is opened in 2026, with a great impact on the feasibility of outdoor education at this location.

The Farm (1)

Currently, the farm is mainly used by the Wageningen Student Farm (WSF), who grow organic crops and keep bee hives in the area. They also use the space for excursions, education for students at elementary schools, and open working sessions.

The area offers potential for teaching activities. A campfire with sitting logs is present and can house a total of 15 individuals, and two more places on the farm can be used for small groups of people (5-10). The Farm also has two storage facilities, consisting of a shed and a caravan. These could be used to house some materials for outdoor education at the farm. Due to the nature of the location, it is a very suitable location for outdoor environmental education as well, both on natural and on agricultural topics. The crops, the agricultural techniques, or the bee hives provide great inspiration for small lectures or workshops.

Disturbance is primarily from the bus lane, where busses cross every ten minutes. After construction of the general road, this noise will only increase. Disturbance by pedestrians is low, given the fact that the Farm lies outside the busy part of the campus. Physically disabled students will have a hard time accessing the Farm, given the fact that the ground is muddy and not hardened. The nearest bathroom facilities are found at the Aurora building, which is a three-minute walk. Bicycles can either be parked at Aurora or behind the Vitae building.

The Prospect site (2)

The Prospect site is a part of the Farm that is currently only used for composting. The rest of this site is undeveloped and is currently occupied by weeds. A singular track runs through it to the bee hives at the end of the Field. According to the WUR plan for “Groenonderhoud”, the area is designated as herb mixture.

The area seems suitable for outdoor education, offering the same facilities as the Field, including close bathroom space and storage possibilities. However, because there is currently no development at the site, it provides the possibility to completely cater this space towards the demanded forms of outdoor education. The space allows for enough people to have a lecture-style form of education; small modifications could be made to allow seating on e.g. tree trunks with a blanket stored at the shed. If the demand is proven to be focussed on smaller groups this can also be facilitated here, again with minor modifications. The total amount of people that can occupy this area is about 50-70. It is easy to reach by foot from Aurora but is once again not easily accessible for students impaired mobility, as the entrance to and connection with the Farm are not hardened and can be very muddy. Semi-permanent construction is allowed on this plot, meaning a defined area designated towards outdoor educational activities.

Field North of The Dassenbos (3)

On the west side of Wageningen Campus, the Dassenbos forms the last remaining piece of a centuries-old forest. The forest patch has a monumental status and is not accessible to the public. The small patch of land to the north of the Dassenbos is used by the Forest Ecology and Management (FEM) chairgroup as an experimental research area for young forest development. This area is accessible through a path along the north side of the pond by Aurora. This area also serves as an ecological compensation for construction of the new bike lane south of the Dassenbos. Therefore, the protective status of the Dassenbos is also included in this young forest, preventing the use of the space for other (educative) purposes. Despite the potential for workshop-style or other small-scale educational activities, the regulations prevent the possibility of organising any structural form of outdoor education activities in this area.

Artwork corner by Aurora pond (4)

To the north of the Aurora building, a small patch of land is located in the corner of the Bornse Weilanden and the Vijfde Polder. The corner houses a tree and an artwork; between this artwork and the pond, a somewhat sheltered area has the potential for creating a space for small-scale lectures or workshops (with a maximum of 30 students). By making a seating set-up in front of the artwork and having the teacher stand by the pond, students look out during lectures over the pond, the Dassenbos and the Aurora building. This gives opportunities for educators who have no strong need for content-based nature education, but simply wish to teach their regular courses outdoors.

Though the area is enclosed by two roads, this is a relatively calm section of Wageningen Campus, and noise disturbance is not expected to be a big issue in this area outside of morning and evening rush hour. Moreover, the stone artwork provides some barrier, separating the educational activities from potential traffic. The area is close to Aurora, at

approximately three minutes walking distance, providing bathroom facilities and the potential for storing any materials needed for education inside the building.

The Actio field (5)

Between the Actio building, the Student Medical Centre and a parking lot, a field is present that was suggested as a potential space for outdoor education. Construction plans by Idealis mean that in the near future all sides of the field will be completely enclosed by buildings and road. The field itself is not large enough to be shaped in a way that outdoor education seems possible or desirable. Therefore, we do not recommend any (outdoor) education at this location and will not regard it any further in this report.

The Amphitheatre (6)

Located west of the Impulse building is an amphitheatre, managed by the organisation of Impulse. This large, paved circle is used as a space for outdoors events, and functions as a meeting place during breaks and lunch walks. The area has extensive seating possibilities, and can hold large groups of up to approximately 100 students. For educators searching for a space for outdoor lecture-style education in large courses, this is the most suitable space that Wageningen Campus currently offers. The space also has access to power and water, and could relatively easily be closed off by blocking the entrance paths, for example using large plant pots on wheels. The relatively large distance from major roads means that noise pollution is limited (though this will most likely change once the new access road to Wageningen is developed on campus). However, the setup of the amphitheatre currently has students looking out over one of the busiest cycle paths on campus in the background, leading to distractions from the lecture. To solve this issue, a hedge could also be constructed on the other side of the ring, creating a more enclosed space.

However, the amphitheatre is fully paved and made of concrete. Outdoor education in this space therefore has very limited interaction with nature. Of the various opportunities for outdoor education on Wageningen Campus, this large-scale option is the least nature-inclusive. The amphitheatre would therefore offer very limited contributions to the human-nature-connectedness that is often named as one of the important benefits of outdoor education.

The Living lab (7)

Between the Orion and Omnia buildings lies a green space, used as a Living Laboratory. This consists of patch of grass with an oak tree in the middle, and a central area that functions as a wadi, capturing and storing rainwater in periods of high precipitation. Surrounding this are several stone picknick tables with access to electricity, and slightly elevated hills that partially shelter the area from its surroundings. The edge of the grass area houses several small insect hotels. The area is close to several of the buildings of

Wageningen Campus, and therefore gives easy access to bathroom facilities. It is also accessible to physically disabled students, due to the hardened paths. However, the proximity to major campus buildings also makes it a relatively busy space, with many WUR employees and students coming here for small walks during breaks or lunchtime. The living lab is nearby the road and bus lane, which may lead to noise disturbance (especially after the expansion of the bus lane into a main road in 2026), and is difficult to close off or keep secluded during educational activities. The area would be suitable for workshops and lectures for small group sizes, of up to approximately 30 students. It also provides opportunities for practical (environmental) education on vegetation recognition, water management, insects, and microscope work (e.g. researching algae).

The Landschapstuin (8)

Located just to the north of the Omnia building is the "Landschapstuin"; a wet garden where the original landscape of before the beginning of Wageningen campus is recreated. It was considered for our purpose of outdoor education, but deemed unusable due to the large amount of noise produced by the Mansholtlaan. Furthermore, the open area means that there is very little privacy for students or teachers, and it is not possible to easily close off the area. A small part of the Landschapstuin, just north of Omnia, would solve the privacy issues because of the row of trees that are planted in a half circle. This could facilitate a small (max 30 people) lecture style location, *if* noise issues from the Mansholtlaan are solved somehow. Facilities from Omnia or Atlas could be used, both only about 100m walking distance.

Lumen/Gaia nature garden (9)

Behind the Gaia and Lumen building lies a nature garden with a pond. This pond is used regularly by employees and students for walks during their breaks. This space is quite large, and a trail surrounds the entire pond. The area is of high ecological value, which is why visitors are only allowed on the trails. For the purpose of outdoor education, the restrictions on leaving the path and human presence make this space unusable. If sitting or exploring outside the trails were allowed, the location would have more potential. Other locations on campus are not constricted by these regulations and are therefore more suitable for outdoor education.

The Droevendaalsebos (10)

Located to northwest of the Idealis complex Droevendaal, this location is a small patch of forest, currently being used as a location for outdoor education on very rare occasions. Part of the land is owned by the municipality, granting public access to the location. The municipal part of the forest already features two open spaces which would allow for (relatively) small-scale workshops. One of the open spaces has the skeletal structure of a roof, which could be covered using a tarp.

However, the WUR also owns a small plot of land located on the north side behind the municipal land. Reaching this area can be challenging, as students have to walk over the porches of the Droevendaal student complexes to find a small path leading to the forest patch. The WUR-owned land does not have any infrastructure. It is an open patch enclosed by a ditch and brambles on the other side, and offers some open field and forest spaces. The part of the forest that is owned by WUR also is somewhat sheltered from the Mansholtlaan by a hill, providing a more secluded area. Bathroom and storage facilities are not available in the direct environment; the closest university building is the Atlas building, which is a ten-minute walk of or five-minute bike ride. The area is relatively hilly, and is therefore not suitable for physically disabled students or teachers. Additionally, the WUR ground houses a very small pond, which acts as a mosquito breeding ground during summer.

Outdoor education has been done at this location before, showing possibilities even with no infrastructure or guidance from the WUR. While overcoming the aforementioned obstacles might require more organisational skills from a teacher than in most other outdoor spaces around Wageningen Campus, the potential value of the Droevendaalsebos as an education space should not be underestimated.

The Food Forest (11)

The Food Forest is located directly to the east of the Droevendaal building. This is a five-minute bike ride from campus. The location is a forest where different crops, fruits and vegetables are produced in a biodiverse, natural setting. It is located between the Droevendaal building and two roads, the Kielekampsteeg and the Mansholtlaan. The Mansholtlaan produces a lot of noise. To combat this, an earth wall was constructed between the forest and the road. When visiting the location, it occurred to us that there was still too much noise pollution for any kind of lecture style education. Smaller-scale workshops and excursions are already being organized in this forest. The forest is one of the few spaces on and around campus where the coexistence of humans and nature is strongly emphasised, and can therefore be a valuable space for discussions on human-nature-relationships. Bathroom and storage facilities are found at the Droevendaal building, which is right next to the forest.

External locations

The locations mentioned in the next paragraphs are external locations, the WUR has no control about the structure, usage or development of these locations. Contacts with these locations already exist but are informal. Both locations usage comes with some cost, either monetary or time wise. Planning lessons here is difficult and the focus of this project is to focus on what the WUR already owns, we therefore do not recommend trying to include these location in a plan for outdoor education on WUR. However for the sake

providing a complete rapport these locations are also considered in more detailed. The points written above this paragraph should be considered.

Creative Garden De Hoge Born (12)

The Creative Garden De Hoge Born is located one kilometre from the campus, on the Bornsesteeg. This is a community garden, which includes a vegetable garden, food forest, chicken coop, and a small grass field. The garden is surrounded by agricultural fields, and is surrounded by trees and hedgerows, creating a relatively secluded space very close to campus.

Partly due to this secluded nature, the garden has a more nature-connected feeling to it than many of the aforementioned spaces on campus, which are often surrounded by or close to tall buildings. The garden offers no shelters for poor weather conditions, but has the possibility for fire-making. It can house approximately 30 people, and is easily accessible from campus by road. Renting this space is possible by contacting the Hoge Born, deciding on a time suitable for both parties and pay compensation (if there is). The points mentioned above about external locations is important in this scenario, the Hoge Born is a well functioning institute so they are not pressured to allow all kinds of outdoor education at the location.

The Leemkuil (13)

Halfway up the Wageningse berg lies the estate the Leemkuil, with a former mansion that has now become a national monument. The estate consists of a loam pit in forested surroundings, creating a natural amphitheatre-like setting. The Leemkuil is very secluded and in a natural, woody setting. This also means that there are no facilities present for education. The estate can house up to 50 people. It is located on the Wageningse berg, at approximately 20 minutes distance by bicycle from Wageningen Campus. The space is easily accessible from the nearby road by bike or car. This space is privately owned and difficult to acquire permission to use the plot. Land owners are cautious with inviting large groups and can request serious compensation for the usage. In the past students helped with removing some invasive species in exchange for the usage of the space. This is not activity which you want your students to be busy with, therefore it would be more beneficial to develop outdoor education on campus.

New space (rewilding of test fields) (14)

The values of outdoor education align well with those of the WUR regarding its Vision on Education and Green Vision. Therefore, the creation of a new space for outdoor education should also be regarded as an option. University-owned land, which is currently used for other purposes, such as test fields, may be modified towards a location which can support outdoor education, if this change comes with enough benefits to replace the current usage. This would provide the opportunity to perform a

rewilding experiment close to campus, with the explicit goal to create a space with a natural setting, which has limited (noise) disturbance, and is easily accessible.

The modified locations (rewilding part) require a quiet, natural space and a well-spaced area. In general, a size of around less than 1 hectares is enough to accommodate outdoor education learning activities, experimental zones, and nature spaces without causing disruptions. The potential location lies between the university-owned land and the campus boundary. It should not currently be used intensively, so repurposing it will never cause a conflict in use. The option to use outside the campus is possible, but it requires collaboration and communication with relevant stakeholders.

In terms of socio-ecological development, it is necessary to include actions such as restoring local vegetation, expanding natural habitats, integrating open-nature classroom settings, and regulating access to protect the ecological aspects of the locations. To ensure sustainable conditions, this oversight needs to be supported by formal collaboration among relevant departments, chair group or program (e.g., environmental sciences, or forest and nature conservation), WUR Facilities & Services, and other education units (e.g., teaching methods for outdoor education, *natuurcollege*). The coordination of the scientific, operational, and pedagogical aspects is well-established. This approach gives a clear basis for the following practical practices to actualise outdoor education settings at Wageningen Campus.

As a result, the connection of the new space with the WUR Education Vision and WUR Green Vision should be adding value of outdoor education to existing WUR education system.

6.2 Interviews

6.2.1 Sample description

5 men and 4 women participated in the interviews. The interviewees' ages ranged from 18 to 49. To create a good image of the wants and needs, both students and educators were interviewed. We tried to include a diversity of studies.

Table 5: *Overview of interviewees*

Respondent	Gender	Age	Function	Study/field of work
1	Male	25	Graduate	MSc Forest and Nature conservation
2	Male	39	Teacher	Statistics
3	Female	23	Student	MSc Environmental Science
4	Female	37	Coordinator	Nature Inclusive Teaching
5	Female	30	Graduate	MSc Marine Ecology
6	Male	49	Director of Education	Forest and Nature Conservation
7	Male	31	Student	MSc Environmental Science
8	Male	18	Student	BSc Landscape Architecture and Planning
9	Female	47	Educational Trainer and Advisor	Nature Inclusive Teaching

The interviews provided insights into the wants, needs, motivations and barriers of teachers and students regarding outdoor education. This section presents the main findings from the interviews. The results are organized around eight themes that emerged during the analysis. These themes contain different subtopics which will be discussed.

6.2.2 Learning Needs & Outcomes

Outdoor learning needs

In the interviews multiple participants express the feeling that they feel learning needs be taken outside. This is explicitly stated by more than half of the respondents. Respondent 4 shared that after spending a lot of time inside it is *"finally nice to go outside for a bit"* and respondent 5 also says that *"we spend far too much time inside."*. Another explicit statement about the need to go outside is that learning about outside is best done outside, because *"Forest and Nature Management isn't something you learn in the school benches, you have to go outside for that."* (r6).

Another thought that comes up is that everybody has a right to choose where they want to study or teach, this can be in- or outside. Allowing people to go outside would improve the relationship between humans and nature and make you more environmentally aware. Respondent 4 states that *"Wageningen is simply a university that stands for the relation*

with the outside." and is surprised so little is done about moving the learning process to an outside environment to create this relationship.

Also in other ways the need for outside education is expressed in the interviewees. Fresh air is one of the keywords respondents use to express this, but most of the time they mean that they need a break from the inside world. Respondent 9 says the following: *"And if you sit in the same lecture room all day… well, really, at the end of the day you just don't have any oxygen left"*. They call being outside a basic need and mention that *"we have to go back and see our needs"* (r7) which is something that should be respected by the university.

Developing skills

The outside provides also a lot of perceived valuable benefits according to the participants. Students shared that the things they learn stick more in their mind and tend to be more memorable if they were thought outside of a classroom. Respondent 1 says that *"you see all kinds of things, feel all kind of things, you can touch nature so to say. This allows for a memorable experience which allows students to learn better."*. This is feeling is shared by respondent 2 who says *"certain activities make a bigger impression if it was outside. It makes it more memorable than if it was shared in soulless, grey, concrete classrooms."*. Their statements hint towards of what importance the setting is for creating more vibrant memories. It also shows that the connection to reality and the outside helps with optimizing the use of the cognitive capacity of students.

Teachers and students also shared other minor things that are probably improved while being outside while it is not the focus of the teaching material. One of these things is creativity. Respondents said that outside there are a lot more inspiring things than in a classroom. Creativity is needed in more of the small things like where are you going to sit, can you walk here, etc. *"I think it really improves the creative process. That you start looking at things in a different way."*(r6).

6.2.3 Learning Environment Characteristics

Atmosphere

The interview also provided insights into what an outdoor learning environment should look like in order to be an effective learning environment. This does not refer to the practical facilities, but rather the atmosphere. A big part of the interviewees stated that they would prefer an outdoor education site to have a natural setting. As participant 6 states he wants it in a 'as natural a setting as possible'. This often refers to a natural setting with few facilities and plenty of peace and quiet. More on this is discussed in the facilities section. Noise is also a topic of discussion. Respondents indicated that a suitable location should not be too noisy. They would prefer not to have a *"bus lane that speeds past"* (r6) or *"the Mansholtlaan that borders it and makes noise"* (r2). In contrast

to the noise, respondents are looking for *"a place that is quiet"* (r3) with *"the tranquillity of nature"* (r6). Respondents are looking for a place with *"a bit more peace and quiet"* (r9).

The university's existing facilities are often too crowded. For example, respondent 5 says: *"I think Lumen is really nice, but it's way too crowded."* Respondents indicated that they enjoy being outdoors because of the space. *"You get a lot of inspiration from it, because there's so much space around you,"* says respondent 5. "You don't have walls holding you back" says respondent 6, who also indicates that *"you're much less likely to have conflicts. It's also easier to separate and come back together"* because of the space. The only challenge that emerges in this section on the atmosphere is the focus outside. Respondents indicate that they are less focused outside. This is probably because there are more things to see outside than in a traditional classroom at the university.

6.2.4 Educational Approaches & Methods

Form of education

Different views on the approach of the educational styles of outdoor education were expressed during the interviews. Most respondents said that *"regular education in an outdoor setting"* (r6) could be already very helpful with achieving outside education. Very specific answers were not given on what educational styles should be applied because most respondents said it depended on what the teacher wants to explain or expect the students to do. Respondent 9 said *"It would be the task of the teacher to look which activities fit outside and enhance their learning goals"*.

A respondent proposed the possibility of doing *"walking lectures"*, where the teacher would walk along a path with a group of students, explaining while walking and stop at interesting sites. Respondent 1 said *"If you would only already walk routes over the campus"* it would already be better than being inside. This expresses once again the need of going outside which has been discussed previously.

Currently student respondents linked excursions and field work mostly with outdoor educational activities. Respondent 8 shares the experience of having *"multiple excursions outside and in the field"* and for some *"it was more like the only kind, I think, of outdoor education that I experienced"* (r3), which shows the lack of outdoor activities in the current education system.

Teacher influences

But teaching outside will be a whole new experience not only for students but also for the teachers. In the outdoor the teachers will be challenged more on how they lead the group of students in which *"the personality of the teacher is very important"* (r2). The teacher will need to keep up with the increased energy of students outside to keep order and be able to teach correctly. The teacher probably also needs to come out of their comfort zone if they will teach outdoors. Especially when starting out, a lot of extra pressure might

be on the teacher to ensure a smooth learning experience for the students. These small things might add up and go wrong but *"a good teacher can find a way to balance this"* (r3). But there are also benefits to teaching outside. One of these is benefits is *"you are able to make a real connection with students"*, according to respondent 4. A student confirms this in another interview by saying that *"it is easier to ask questions to teachers while being outside"* (r8). This is also due to the fact that education which is outside is perceived as more informal by students.

6.2.5 Social & Psychological Factors

Alternation between inside and outside

There are of course differences between education inside and outside, and this was also noticed by the respondents. *"then you have a completely different experience"* (r6) and *"going outside is really something different"* (r4) respondents state. Switching between these types of education can be helpful. As respondent 4 said: *"The change of setting usually helps"*. Respondent 8 says that this change of scenery *"has a positive effect"*. Outside education can be differently (and more) stimulating than inside education. *"You see different things, your senses are stimulated in a different way."* says respondent 1.

Emotions and Wellbeing

Outdoor education also affects the emotions and well-being of students and teachers. Indoor classrooms are often seen as *"uninspiring and boring"* (r2), while in outdoor learning, students are *"more enthusiastic and motivated to learn"* (r1). Both teachers and students appear to be more motivated in an outdoor environment. Being outside provides a certain feeling of freedom. *"What I also notice is that when you are outside you feel a lot freer than in a classroom."* says respondent 1. When coming home after a day of outdoor education you are *"actually physically tired from the day, but it is also very satisfying that you have learned and seen a lot."* (r1). So this shows that outside education seems to lead to fulfilment, which inside education cannot. Several respondents also indicated that they experienced less stress in an outdoor education environment. They indicate that such an environment often feels more relaxed than an indoor environment and that the threshold for talking to fellow students and teachers is lower.

Social dynamics

According to the respondents, there is also a difference in group dynamics between indoor and outdoor education. Like mentioned earlier, outdoor education often feels *"a little less serious, a little more informal"* (r8). This leads to a better dynamic among students and between students and teachers. *"Then you have a stronger connection with your classmates"* (r5) and *"you can approach the teacher a little more easily with questions"* (r8), respondents say.

6.2.6 Practical Conditions

Infrastructure and Facilities

Respondents had a lot to say about the infrastructure and the facilities that need to be present with outdoor education. There were differing views on the amount of facilities that should be present. Some respondents had more needs and proposed *"why not having a class in like in the greenhouse"* (r7), while others had less needs and said it was enough *"if you're in nature, trying to find a place that is quiet, that has some sitting spots for people that need to sit down"* (r3).

Sitting was the one subject 5 respondents agreed on to be of greater importance. Different ideas were proposed to sit of which the simplest one was *"Everybody is sitting in a circle on blankets"* (r5). The blankets are important in this scenario, because like respondent 6 said *"so you don't have to sit on the ground*.". Another idea that was proposed multiple times was the idea of having *"(small) logs"* (r6) to use as chairs. But a chair without a backrest also can negatively affect the atmosphere as is shared by respondent 2 who said, *"from experience, people will suffer from their back becoming sore"*.

Another form of facility that was mentioned by different respondents was the possibility of having electricity at the site. Respondent 5 said it would be useful to charge their laptop, because it is included and expected to be brought to almost every course at WUR. But respondent 6 has a different vision on this and said that teaching with electronics is not something for outside and you need to *"go inside if you need those"*. Respondent 2 has multiple ideas to phase out the electronics of the outdoor education with *"a beamer can be replaced with paper handouts"*, *"a flip over can be used by teacher to write on"* and *"students can take paper notes instead of using their laptop"*. These things like a flip over or any other thing a teacher could use for their class could be stored in *"a basic storage at the outdoor education site"* (r6). The problem of having a storage which is not highly guarded is that it could be vandalised. WUR has camped with vandalism in the past; for example, the shading screens above the amphitheatre have been torn down twice. Respondent 6 realises this as well and says that "*making it vandalism proof will be a challenge*".

Another facility that could be prone to being vandalised or misused is any type of structure that is built at the outdoor education site. Multiple respondents say that having a structure with a roof could be beneficial so the site is suitable to use even in harsh conditions, with respondent 8 saying *"it should withstand sun, rain and wind to be useful year-round"*. Being shelter from these conditions is nice, but other respondents also say they want the outdoor education to be sheltered from the public *"with small hedges and trees"* (r4).

Weather and Environment

As mentioned previously being sheltered from the weather is important according to the respondents. But *"outdoor education should take place in every season"* (r9) and the respondent 6 tell us that *"there is no bad weather, there is only bad clothing"*. But generally, the respondents told us that they like to be outside *"like with nice weather, ..., it obviously makes you feel good to be outside"* (r3).

Logistics

Some of the respondents also mentioned the logistics of outdoor education in the interview. Especially the time that it will take teachers or students to reach the location. Respondent 6 even posed the following question themselves: *"How much can the travel time be to the outdoor education location?"*. Respondent 3 said that *"if it's very far away, then sometimes I'm like a bit, oh, I need to bike 30 minutes somewhere."* which can become a problem in the case of tight scheduling of extracurricular activities or hobbies like sports. Another concern is that if the outdoor education location is far away "*you need money to get there*" (r3), what is perceived as a negative implication. Because of these concerns respondents say that locations *"are preferably on campus"* (r9).

Another question that came up during the interview is *"How many students needs the outdoor facility be able to handle at once?"* (r6). There was not a clear answer to this question because the group size could also depend on the size of the location. This location should fit *"how many students you want to teach at once"* (r6). Respondent 4 said that *"the group size should not exceed 25 people to be able to understand each other easy and correctly"*.

And as last point of concern is that the accessibility of the location for disabled people would be *"a serious challenge"* (r4). Respondent 6 gives us an example *"for someone in a wheelchair it will be almost impossible to follow some parts of a course if it is outside."*. But respondent 3 thinks *"it's necessary that everyone that takes part in that class should be able to go."* and not to exclude people from courses because of their disabilities. As a possible solution was proposed to *"teach kind of same tutorial in an indoor classroom as well"* (r6).

6.2.7 Nature and Environment

Locations

Several existing locations are mentioned by respondents.

The Lumen building is mentioned as a reasonably good option. *"Lumen offers a connection to the courtyard, but also easy access to the outdoors"* says respondent 2. *"a very easy one, I think, is Lumen. That could also solve the weather and season factor"* (r3).

Droevendaal was mentioned by one respondent, but they were moderately enthusiastic about it. *"We're kind of in the backyard of those guys at Droev"* and *"Now it's semi-tolerated"* said respondent 6.

The food forest is also mentioned as a possible location by two respondents, but they have no further opinion on this.

Respondent 6 also mentioned The Field as a potential location. *"We felt it was a less suitable location. Because of a high-rise apartment building that's actually right next to it. A bus lane that speeds past"* he added.

Three respondents also mentioned the existing amphitheatre on campus. Opinions on this are somewhat divided. On the one hand, it's said that it *"could be used for an educational setting"* (r5), but on the other hand, respondent 6 finds it somewhat *"less nature."*

The Dassenbos is also mentioned by 2 respondents. *"There's a Tiny Forest project going on there now, by *name*. But it has a somewhat open setting. You're right on the edge of the forest without having to enter it, because it's essentially closed off. They don't want to open it to the public because of the research being conducted there. But that's really the only truly natural space in Wageningen."*

Connection to nature

The connection with nature is also often mentioned by respondents. There is a lot to learn about nature when you are actually in it. For example, when *"something specific is being discussed about that one tree, the teacher can easily explain it. This is a tree and this is the part we're talking about now"* says respondent 5. According to respondents, this should also contribute to a better relationship between students and nature. Respondent 3 states that: "*Well, if we're talking about outdoor education in nature, I think for sure it helps fostering a sense of connection with nature and our surrounding."*. They care more about nature if they know and experience it better.

There is also a downside for nature when outdoor education is implemented. There is a chance of nature disturbance. Where respondents used to be allowed to go off the paths with their studies, this is no longer allowed due to the risk of disrupting nature. It is indicated that this depends mainly on the size of the group to which the education is provided. This is therefore something that needs to be considered.

6.2.8 Regulations & Scheduling

Only a few comments were made on this theme by the respondents. The interview also did not have dedicated questions towards this because the part 'boundaries at WUR' would cover all these topics. Nevertheless, respondent 9 shares that it would be useful and encouraging for outdoor education that the outdoor education spaces are *"open for*

reservations”. Respondent 6 shares this opinion and thinks the spaces should *“act like normal classrooms”*.

6.2.9 Challenges in Outdoor education

Outdoor education also brings its fair share of challenges, these come in the form of mental and practical challenges.

Mental Challenges

There are also some mental challenges associated with outdoor education. Participating in outdoor education often requires participants to step outside their comfort zone. A risk is *“a part of the comfort zone for both teachers and students, but perhaps, like discussed before, even more so for teachers. The moment you start doing something different, you run a risk.”* (r2). Those teachers may be afraid of the new. This may discourage teachers from implementing outdoor education. Some respondents indicate that they are not only unfamiliar with outdoor education but also that they *“do not feel very comfortable there”* (r6). Besides these capacities and desires of students and teachers, there's another problem that emerges from the interviews: there's a taboo or stigma surrounding outdoor education. This stigma needs to be broken before outdoor education can actually be implemented.

Another point that often came up as a problem in the interviews is distraction outside. *“I do get distracted if I'm outside”* (r3) and *“I'm getting distracted”* (r5) respondents say. While you're sitting in a dull, grey environment inside a classroom, outside you're surrounded by nature, sounds, and other people. This can, of course, be distracting.

Practical Challenges

A few practical issues also emerged from the interviews. For example, there's a risk of accidents outside, and the costs can also be a concern. Another challenge is that students and teachers also need to have appropriate clothing, which they might not all have. This is needed to counter bad weather as discussed before.

6.3 Survey

6.3.1 Demographics of respondents

A brief overview of the demographics gives us a clear picture of a well-rounded and diverse respondent group. The ratio between male and female respondents was a bit skewed towards females, with 180 female respondents and 127 male. This is in line with the current demographic at the WUR in general. 169 students responded to our survey, 120 master students and 49 bachelor. The number of the educators totalled 117, which included professors, teachers, post-docs and PhD students.

Table 6: *Demographics of survey respondents*

Number of respondents	**Gender**
180	Female
127	Male
Number of respondents	**Function**
120	Master student
49	Bachelor student
117	Educators
21	Others

The results described in this section are the results from our data analysis that were deemed most interesting and relevant. During the data analysis we tested for correlation between most Likert scale questions, statements and the demographic data. We tested differences in responses for interest and other variables for students and educators but also the differences between bachelor students and master students. This was also done by testing differences in study programs for multiple questions.

6.3.2 *Interest in participating in outdoor education*

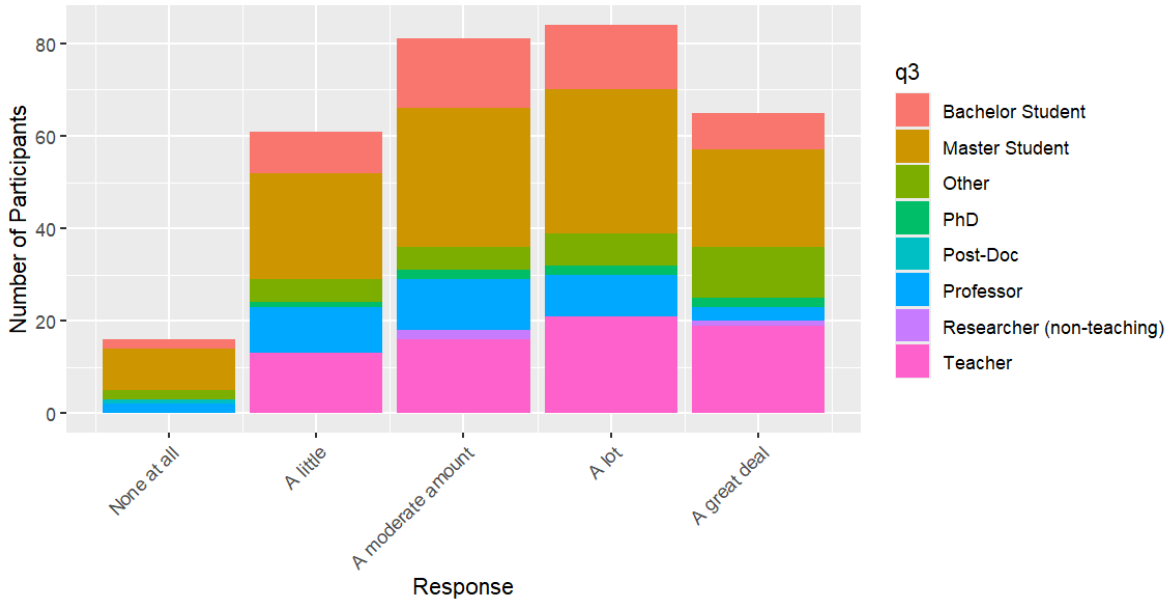

Figure 4: *Interest in participating in outdoor education. Class of role at WUR split out between Likert scale response. Y-axis shows number of responderds per Likert interest class (n=307)*

Of the 307 respondents of the survey, only 5% indicated that they have no interest in participating in outdoor education whatsoever, while 73% of respondents have a moderate to large interest in participating (Figure 6). The results are spread out well across different positions at WUR (including students, teachers, professors, and many other groups), so that the motivation for participating in outdoor education is present throughout many layers of the WUR community (Kruskal-Wallis, $H(7) = 3.6$, $p = 0.83$).

Interest per study programme in outdoor education

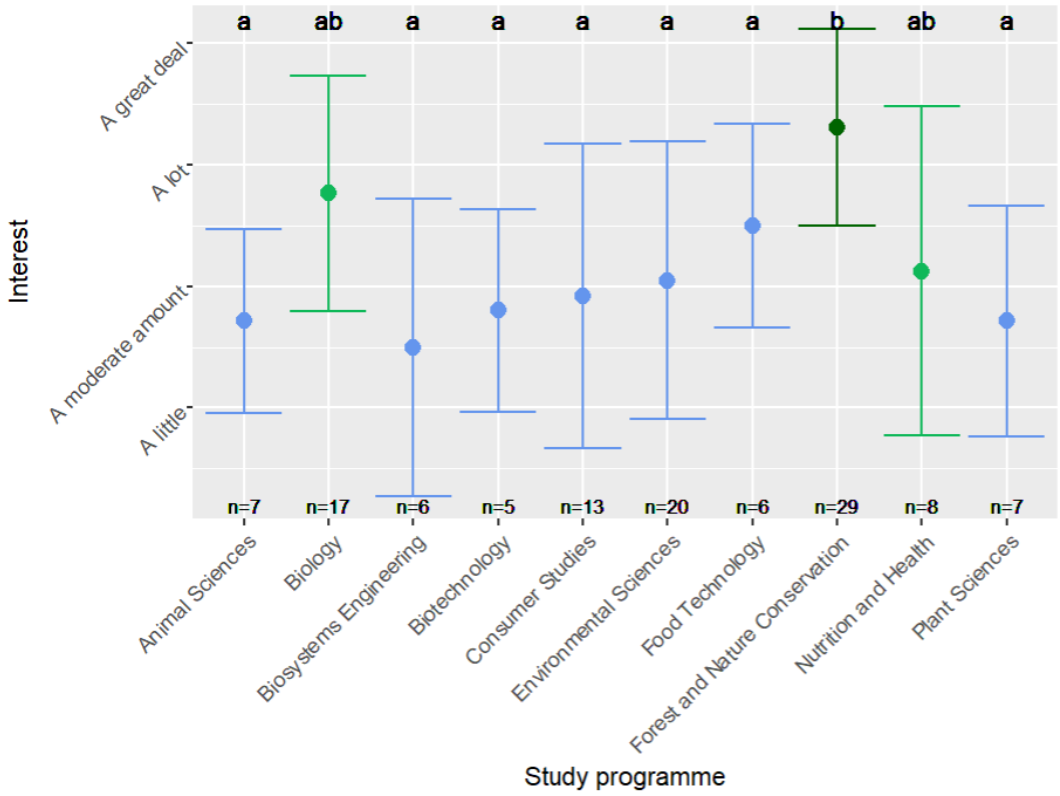

Figure 5: *Likert scale Interest against study program. Mean score + standard deviation per study program. Only programs with >5 responses are included in the graph. Bachelor and Master studies are combined into single class. (n=169)*

A clear difference was found between students from different study programmes with respect to their interest in participating in outdoor education (Kruskal-Wallis, $H(9) = 35.6$, $p < 0.0001$) (Figure 7). Students from Forest and Nature Conservation gave the highest result, with on average ‘a lot’ of interest, followed by students of Biology and Nutrition and Health. Most other study programmes ranged around a ‘moderate amount’ of interest.

6.3.3 *Perceived advantages of outdoor education*

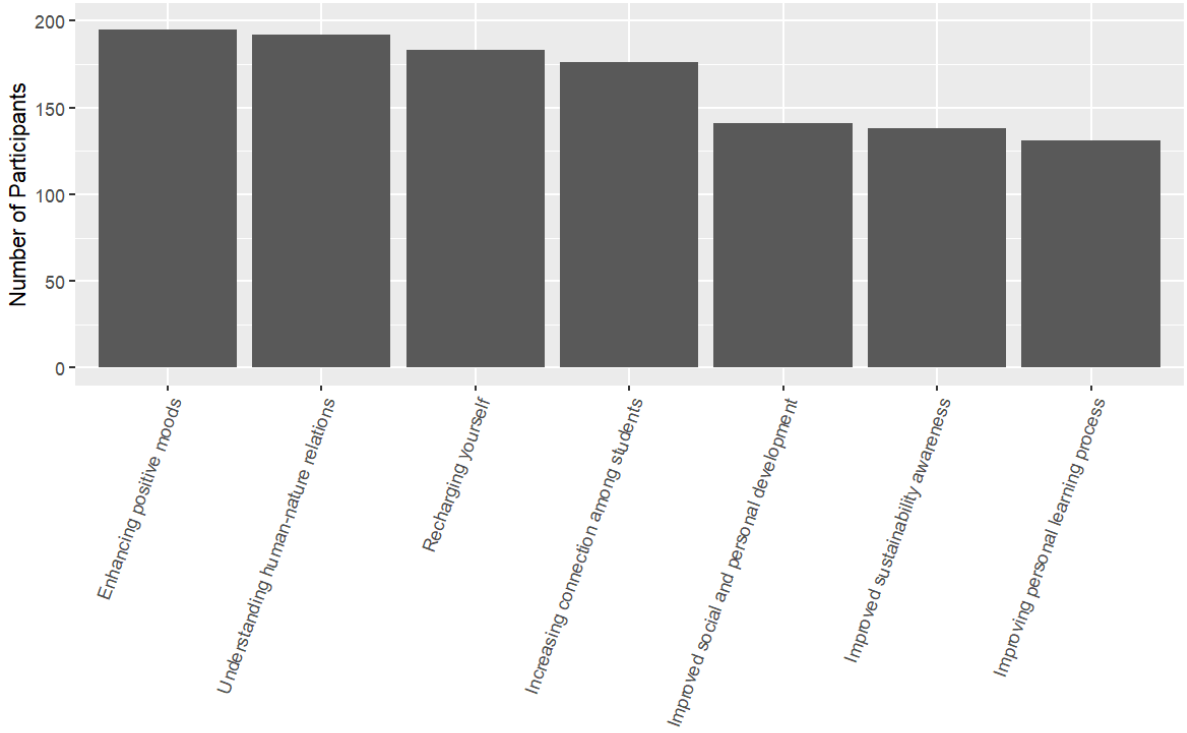

Figure 6: *Bar graph count perceived advantages of outdoor education. 7 categories, each at least 130 responses for every category (n=270)*

All potential advantages of outdoor education that were listed in the survey were perceived by at least 130 respondents (Figure 8). The most commonly mentioned advantages were 'enhancing positive moods' (62%), 'understanding human-nature relations' (61%), and 'recharging yourself' (58%). 'Increased connection among students' is also an advantage listed by the majority of respondents (56%). While the last three potential options provided in the survey ('improved social and personal development', 'improved sustainability awareness', and 'improving personal learning process') are mentioned slightly less often, each of these options was also seen as an advantage of outdoor education by over 40% of respondents.

Other advantages that were named by respondents are the reflective setting, being able to apply theory to reality, a change of scenery, improved memory, and increasing connection and interaction between students and teachers.

6.3.4 *Perceived added value of outdoor education in curriculum*

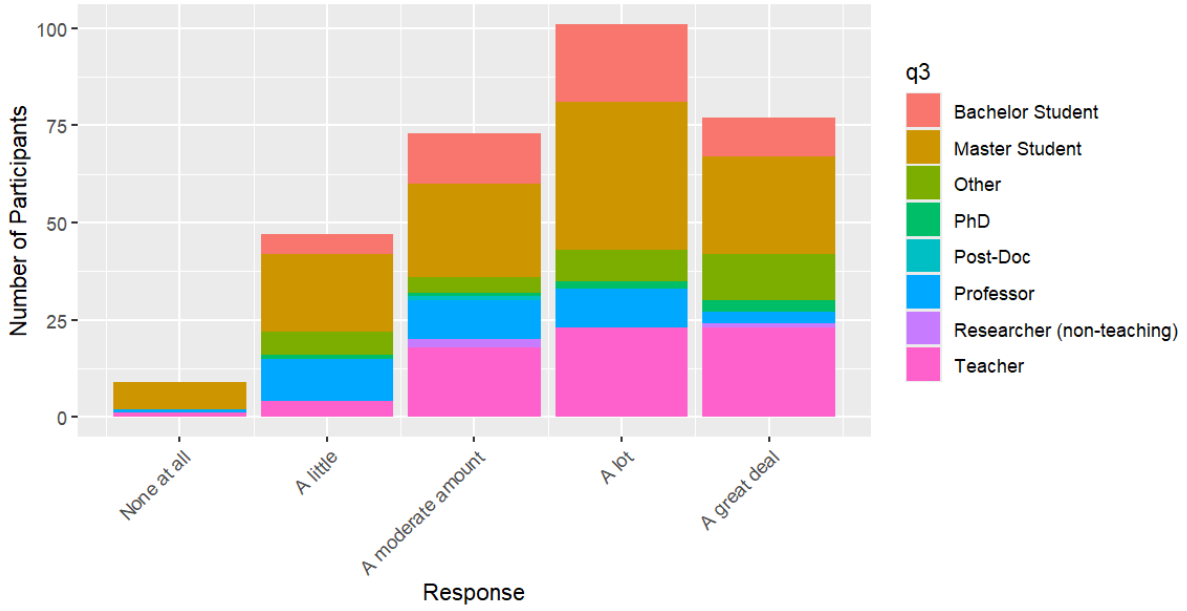

Figure 7: *Perceived added value of outdoor education in curriculum. Categories of role at WUR split out between Likert scale response. Y-axis shows number of respondents per Likert interest class. (n=307)*

Of all respondents, more than 97% thinks that outdoor education provides an added value to students' curriculum (Figure 9). For 57% of respondents, this is (more than) 'a lot' of value. Once again, the views on this matter are relatively well-spread across the WUR community; there are no groups at WUR that show a clear disbelief in the value of outdoor education (Kruskal-Wallis, $H(7) = 1.5$, $p = 0.98$).

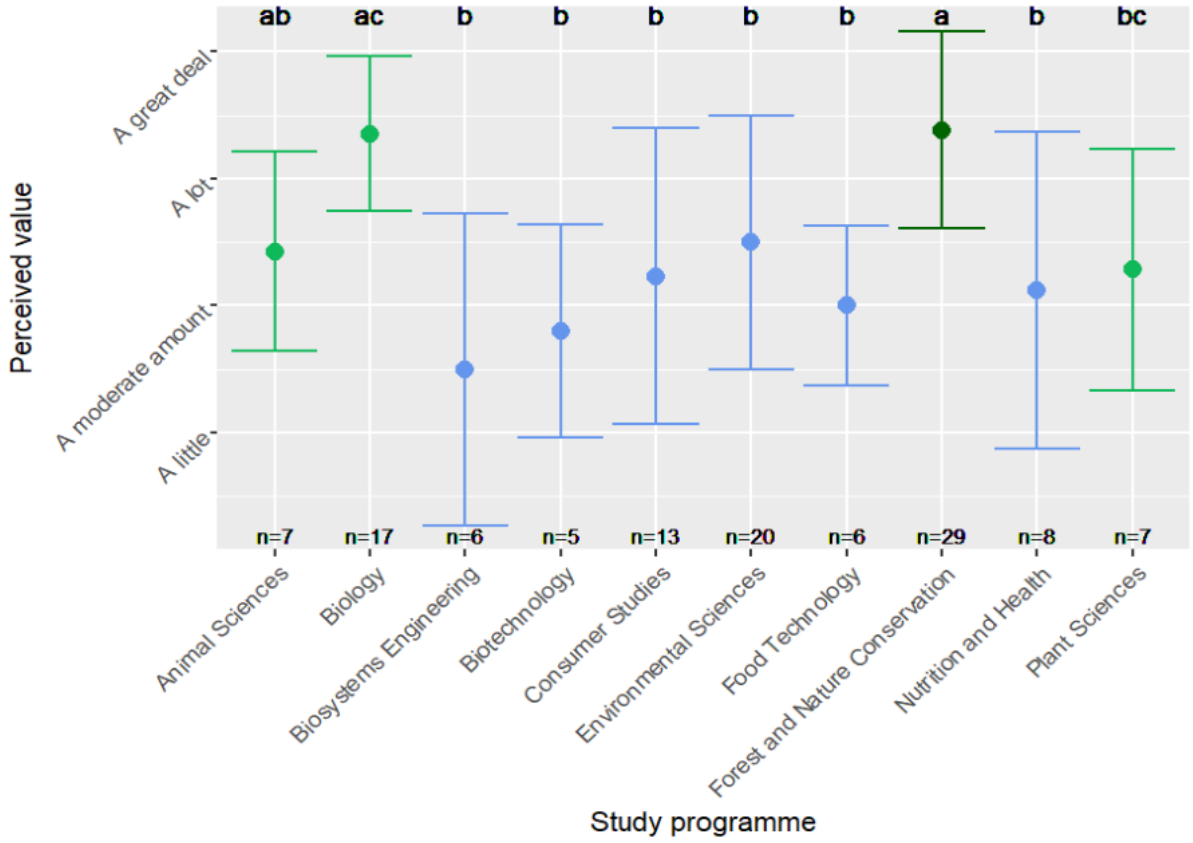

Figure 8: *Perceived added value outdoor education to curriculum against study program. Mean score + standard deviation per study program. Only programs with >5 responses are included in the graph. Bachelor and Master studies are combined into single class. (n=169)*

The difference between study programmes on the perceived added value of outdoor education is, however, significant (Kruskal-Wallis, $H(9) = 38.8$, $p < 0.0001$) (Figure 10). Similarly to their interest in participating in outdoor education, students of Forest and Nature Conservation also observe the highest added value of outdoor education to a curriculum ('a lot'). This is followed by students of Biology ('a lot'), and Animal Sciences, Plant Sciences, and the other study programmes, which all average around 'a moderate amount' of added value.

6.3.5 *Form of education*

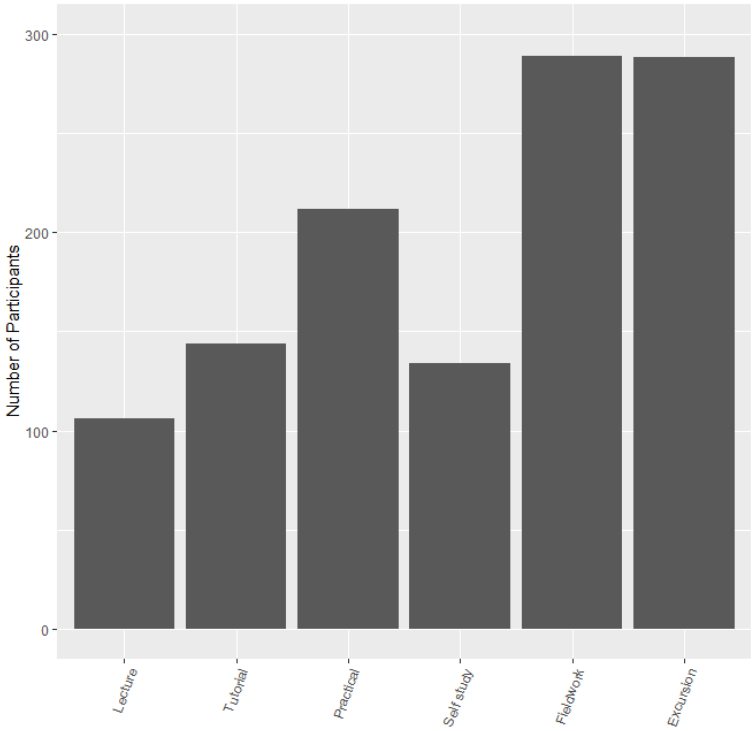

Figure 9: *Count data on the suitability of educations forms regarding outdoor education on WUR (n=307)*

When looking into the form of education respondents think would be suitable for outdoor education, there are some interesting results (Figure 11). Almost all forms of education received over 100 responses, which would indicate interest in outdoor education in any form. Excursions and Fieldwork got the highest response scores (289, 288), which fits in with the current usage of the outdoors at WUR. However, practicals, tutorials and self-study also show great interest (212, 144, 134 resp.). There was the least interest in outside lectures, with only 106 respondents choosing this.

6.3.6 *Educator frameworks/education styles*

Educators reported greatest familiarity with Project-based learning (100), Experiential learning (81), and Challenge-based learning (71). Wild Pedagogies was least known, with only 17 respondents (14.8%) indicating familiarity.

When asked what frameworks/education styles preferred, preferences shifted slightly from the familiarity. Experiential learning (84) was the most preferred approach, followed by Nature-inclusive teaching (63) and Project-based learning (62). Nature-inclusive teaching entered the top three despite not being among the most familiar frameworks. Wild Pedagogies remained the least selected option (28), though more educators indicated they would prefer to use it than those who initially reported knowing it.

6.3.7 Focus

Regarding the perceived focus during outdoor education, as most respondents have had only limited experience, this should be considered when addressing the results of this question. When faced with a Likert scale question, starting with outdoor education distracts me, either extremely or slightly, or allows me to focus, also either extremely or slightly responders answered with an average of 3.17 (n=281). A value of three would be considered completely neutral in this scenario, whilst a higher value would mean they consider themselves more focused. This phenomenon proved significant (Wilcoxon signed rank test, p = 0.0047), highlighting the perceived focus increase from outdoor education.

6.3.8 Shelteredness

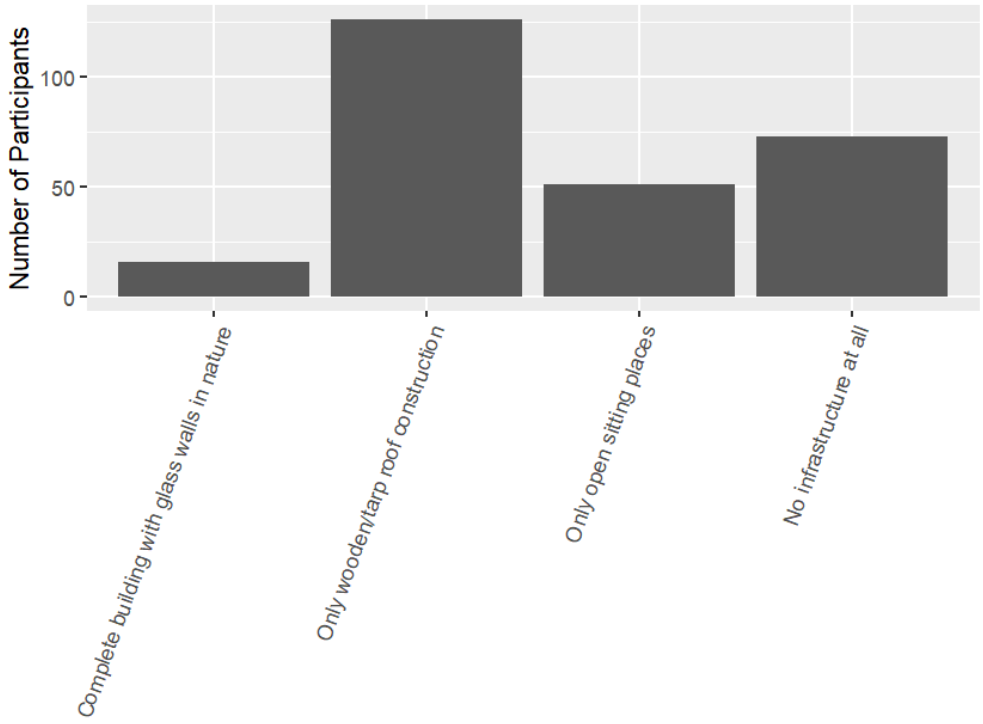

Figure 10: *Degree of shelteredness preferred by respondents, count data on y-axis (n=271)*

With respect to the level of shelteredness that respondents would like to see in an outdoor education space around Wageningen Campus, opinions differed quite strongly (Figure 12). 6% of respondents indicated that they wish for a space in which they are fully sheltered from all elements and weather conditions. Almost half of the respondents (47%) would like to have a roof-like or tarp construction, which provides shelter against potential rain, while 19% of respondents wish for open sitting spaces, and 27% have no need for infrastructure at all. The relatively large wish for (the option of) a roof is in line with the perceived challenges, in which weather conditions were named as the largest problem.

6.3.9 *Education materials*

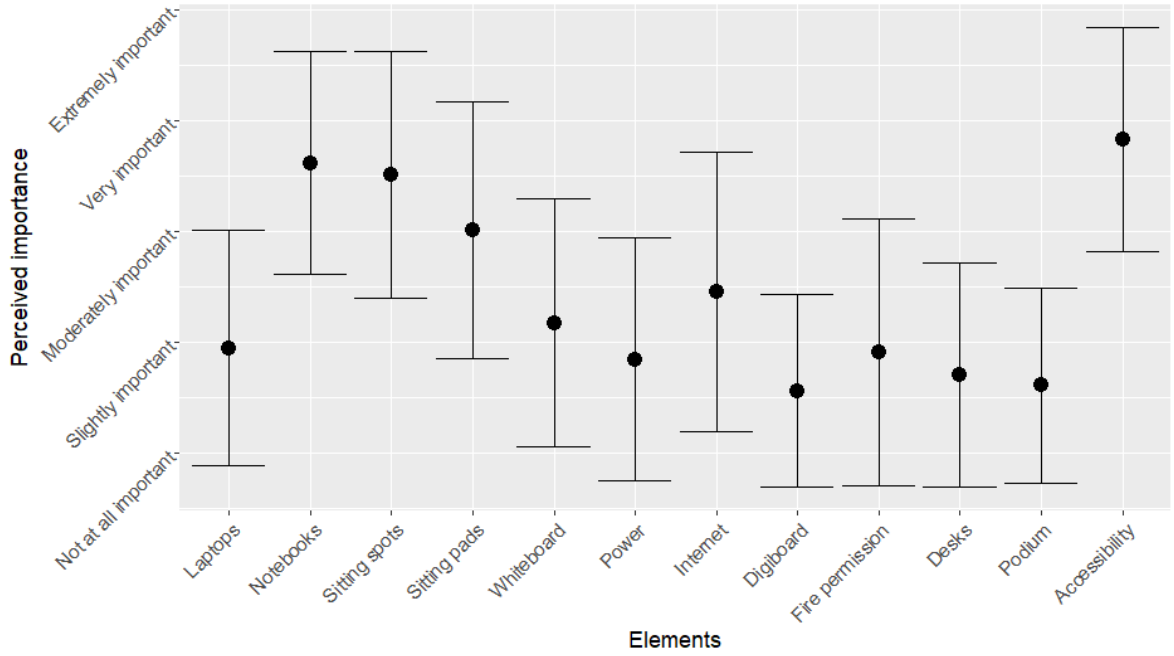

Figure 11: *Perceived importance of educational elements related to outdoor education. Elements differ significantly (Kruskal-Wallis rank sum, p ≈ 0), Likert scaled y-axis responses regarding perceived responses(n=281)*

Regarding the perceived importance of education elements, scaled from not at all important until extremely important. A Kruskal Wallis analysis was performed on the data, which resulted in the significant group differences (Kruskal-Wallis rank sum, p ≈ 0) found in figure 13. The most important elements were considered accessibility, notebooks and sitting spots/pads are significantly more important than other elements. A secondary group of elements consisted of whiteboard and internet, a more developed view on outdoor education. All other elements were considered slightly or not at all important.

6.3.10 Travel time

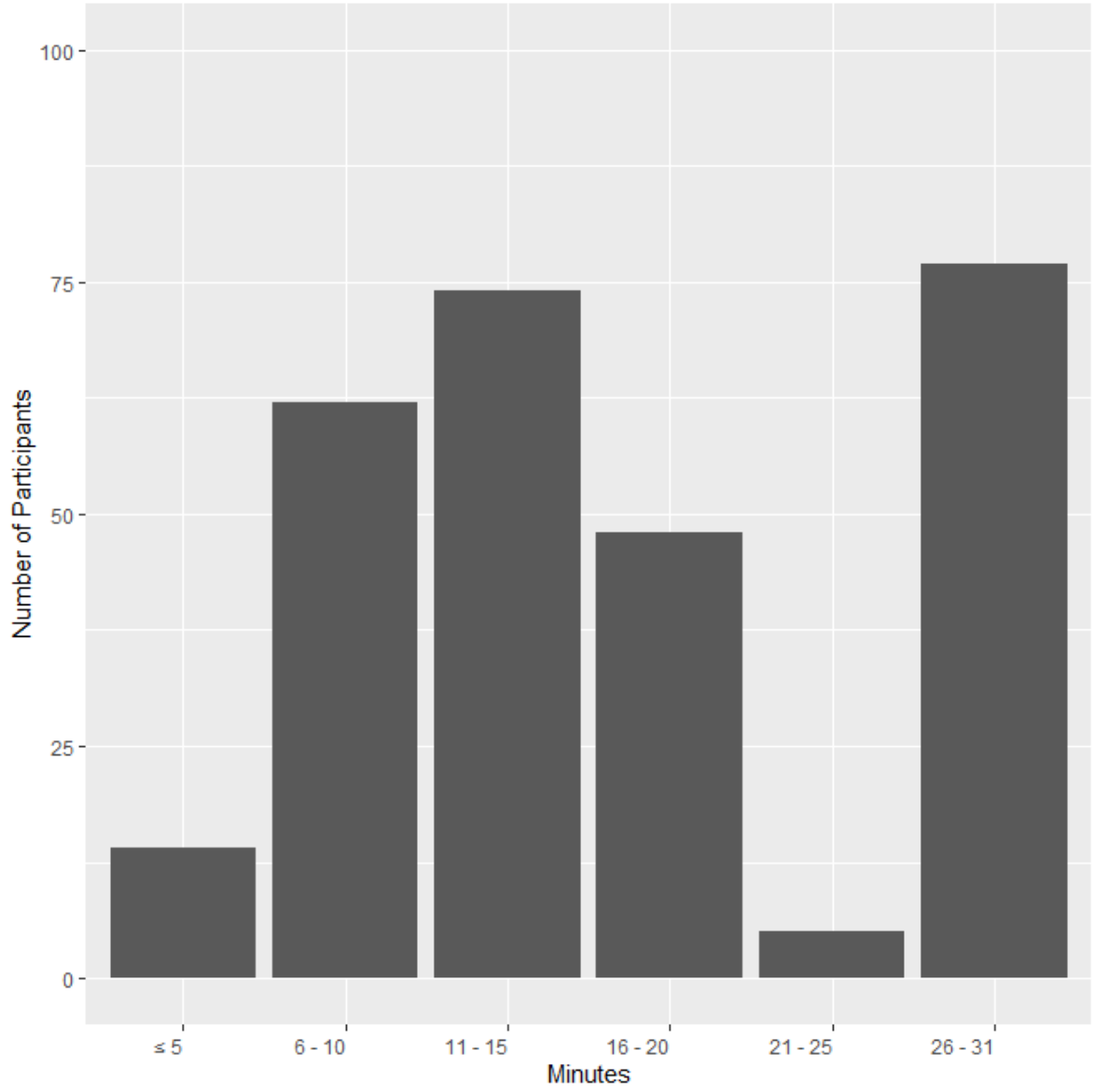

Figure 12: *Bar graph of time respondents are willing to travel to a outdoor education site. Buckets of 5 minute intervals (n=280)*

When regarding travel time to outdoor location, the mean of the responses is about 18 minutes, with a standard deviation of about 8 minutes, forming quite a broad range. When analysing the results in bucket fashion (figure 14), there is a divide in two groups, one group preferring 10-20 minutes and the other 30+. Difference between educators and students is negligible when comparing distributions.

6.3.11 Perceived challenges of outdoor education

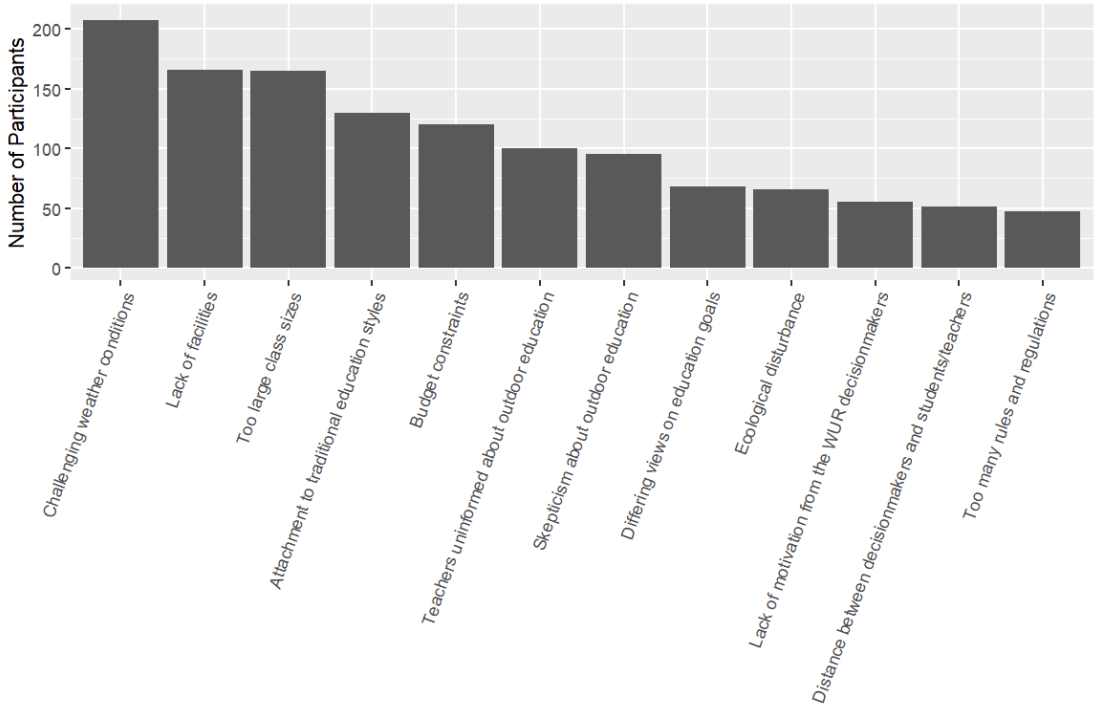

Figure 13: *Bar graph of perceived challenges of outdoor education. Divided in twelve categories, y-axis shows count data of respondents (n=271)*

The challenge that is named by most respondents (65%) as forming a problem for outdoor education, is the issue of weather conditions (Figure 15). This is followed by the lack of facilities and the (too) large class sizes, both mentioned by 52% of respondents. Bureaucracy, distance between students/teachers and decisionmakers at WUR, or a lack of motivation at higher-up levels, were not seen as major issues, being named by 15%, 16%, and 17% of respondents, respectively. Similarly, the question of ecological disturbance through education in outdoor spaces is not seen as a problem by many respondents (21%). There is no clear connection between students' study programme and their view on ecological disturbance.

Several other challenges that were mentioned by respondents were noise disturbance, reluctant students, matching the outdoor setting with practical (e.g. laboratory) education, and travel distance.

6.3.12 Student priorities

Across statements from question 15 up and including question 20 (n = 138), these statements describe a range of different angles regarding outdoor education. Students strongly valued being able to select activities that fit their interests (M = 1.9), outdoor education fits well within the options of this category. In additions students emphasized the importance of being informed about the purpose of outdoor courses in relation to what they are doing during the course (M = 2.0). They were particularly uniformly opinionated about participating when challenges aligned with program goals (M = 1.8), with over 96% selecting agreement options, which is reflected in earlier results as well. With forest and nature & biology students appreciate outdoor education a lot

When asked about feedback from each other, and from the environment a less decisive point of view arose (M = 2.4), indicating less unified views. Respectful and caring learning environments (M = 2.1) and programs that promote inclusion and safety (M = 2.2) were also valued, though responses here reflected slightly more neutral positions. Overall, students leaned toward agreement across all statements, with varying levels of decisiveness.

7. Discussion

In the introduction, the problem was defined in regard to the educational, social, psychological, economic, ecological, planning and logistical perspective. It is important to analyse all perspectives carefully, to make sure the implementation of outdoor education can be done correctly. In the next section, each perspective is discussed with respect to what the report has found and how it affects outdoor education at Wageningen University.

7.1 Educational perspective

We found that being outside and being in nature has added value for education. In the interview we found that teachers and students are enthusiastic about different forms of education outside. They think lectures, tutorials, practicals and self-study are all useful to do outside. The survey supported this and showed that all forms of education are also perceived to be useful outside. Not all scores were equally high, but all were above one hundred participants. In the interview participants showed that they thought outdoor education was especially useful because of learning by experience. The survey results also agreed to this usefulness of experiential learning, but here also nature-inclusive teaching was found as a useful tool. This aligns with the literature, which showed experiential learning strengthens practical understanding and is therefore beneficial.

The interviews showed that the stakeholders were really interested in going outside for education. The survey validated this finding showing that 95% of respondents has an interest in participating in outdoor education, and over 97% of the respondents thinks that outdoor education has an added value to the study curricula at WUR.

The survey showed that the average student has a lot of interest in participating in outdoor education. Students from Forest and Nature Conservation and Biology were even more enthusiastic about participating in outdoor education than other studies. This aligns with the findings from the interviews, where these studies were also mentioned as ideal studies for outdoor education. This is probably due to the ecological nature of these studies. For students from less ecological studies, it might be more difficult to imagine adding outside education to their curricula. We do however think that also for these studies, outdoor education is really beneficial, as also seen in the survey results. These findings support that outdoor education aligns well with dimension 1 of the Educational Vision of the WUR and the literature on the educational benefits of outdoor education.

Class size is an important consideration for the development of outdoor education. 52% of survey respondents considered this a challenge. In the interviews people also talked about this, emphasizing that class sizes should not be too big, to prevent nature disruption and student distraction. The location section of the report showed that most locations were not suitable for large groups of students, with 30 people often being the limit. The Farm, the Food Forest and Lumen are only suitable for walking around or

working in even smaller groups. The main exception to this is the Amphitheatre, which can facilitate large groups of students. Overall, these small class sizes should not be seen as a problem, but rather as an opportunity. Smaller classes can be beneficial for the student-teacher interaction, which addresses the goals of the Education Vision of WUR, by seeing teachers as partners in learning.

The interview respondents told us that information and experiences from outdoor education stick better with them than information and experiences gained indoors. In the survey also respondents filled in this improved memory as an advantage. This relates to the literature findings of how outdoor education has shown to support academic success and knowledge retention.

7.2 Social perspective

Outdoor education enhances students' social dynamics by enhancing peer relationships and student-teacher interactions. Better relationships among students and between students and teachers create a more balanced social environment, thereby reducing conflict, this information aligns with what was said in the interviews. These relationships can take the form of collaboration, support, empathy, and social cohesion, as described in the literature review. Survey results showed that 56% of respondents considered improved student relationships a positive outcome. When students have positive relationships, facilitating their personal development becomes easier. These findings are relevant to the WUR Educational Vision 2025, which promotes personal leadership to enhance resilience skills by bringing students' own qualities, identities, and values into their learning processes.

The interviews revealed a more horizontal teacher-student relationship where the students were more likely to ask teachers questions in outdoor learning environments. Furthermore, student interviews revealed that genuine connections can be forged during outdoor learning. Thus, outdoor learning not only facilitates peer interaction but also allows teachers and students to interact more closely as partners, adding value to the WUR education system. These findings collectively demonstrate how outdoor education strengthens WUR Education Vision 2025 for creating inspiring learning communities, by fostering partnerships between teachers and students, and enabling them to share their knowledge, transfer skills, and reflect on their own attitudes (teachers acting as partners). Also, by encouraging students to be mindful of diversity, outdoor education creates a learning environment where multiple perspectives come together, are acknowledged, and must be valued.

7.3 Psychological perspective

Another important aspect of outdoor education is the psychological perspective. As mentioned in the problem definition, fully understanding the psychological perspective on outdoor education will help get a better understanding of why and how outdoor education should and could be implemented at WUR. With student well-being being a big pillar of the WUR Vision for Education (dimension 1), this was an important part of our research.

Outdoor education is perceived to be very psychologically beneficial by students and teachers, with benefits such as reduced stress, improved well-being, more focus, and feeling 'recharged'. Respectively, 62% and 58% of survey respondents selected 'enhancing positive moods' and 'recharging yourself' as advantages of outdoor education, with both being among the three most frequently selected advantages. This corresponds with the interview results, where several respondents mention that they experience less stress in an outdoor education environment alongside with feeling very 'satisfied' at the end of the day, even when they are physical tired. These perceived benefits are supported by literature, which shows that contact with natural environments improves well-being, while reducing stress, and restoring (or 'recharging') cognitive resources. A strong sense of human-nature connectedness increases these benefits, positively contributing to student well-being overall. This means that more nature-centred green locations are better. Most existing locations are a good option for this; only the amphitheatre would contribute less, being made out of mostly concrete.

However, one respondent mentioned also that it might actually be *more* stressful for teachers when starting out with outdoor education. Taking both students and teachers out of their comfort zone might have a counterproductive effect on student & teacher well-being when starting out. To help cope with the stress and logistics of successfully implementing outdoor education, the teacher trainings in place at WUR (Nature-Inclusive teaching) could help.

One other interesting point was that of focus, with the survey results (n=281) indicating that students and teachers are slightly more focused outside in relation to being inside. However, the interview results indicated that the respondents actually felt less focused when outside. We think that this question of focus could be due to increased stimuli that is present outside (e.g. noise, other people moving about, 'busier' background). Choosing a location that is more secluded, less noisy, and further away from busy roads and paths would be a better fit to allow for better focus. The locations that would fit best in terms of focus are the Droevendaalsebos and the field north of the Dassenbos (even though this location is not available due to the protected status).

Overall, we conclude that outdoor education is beneficial psychologically for both students and teachers. And with student well-being being an important part of the WUR

Vision for Education 2025 and student and teacher motivations, we feel that Wageningen University would greatly benefit from implementing outdoor education when viewing it from a psychological perspective.

7.4 Economic perspective

Ideally, the budget plan is a set of factors that universities need to consider for every project plan. It includes one-time or capital costs (physical facilities, safety equipment, teacher training, etc.) and operational or ongoing costs (transportation, procedural costs, additional staff costs, etc.) (compiled from Hanna (1992) and Waite (2020)). When the location is already on campus, the budget for outdoor areas should be lower than for indoor areas, given the absence of permanent buildings and lower operational costs (e.g., cleaning). However, this depends on the type of facilities included.

However, based on the survey results, the budget was not considered a big challenge to outdoor education. Nevertheless, the commissioner requested a budget-wise option. Interestingly, from the interviews it is indicated that some teachers believe WUR has a budget for outdoor activities, since this is part of the learning process and must be budgeted for. Our survey also indicated that budget was not a major challenge at WUR. This contradicting condition we need to highlight for the further outdoor education project. If the budget is a significant challenge for decision-makers (primarily related to allocation, not the amount), several costs and program matching considerations arise. These will be reflected in the cost plan for outdoor education facilities and matched to existing program funding (WUR uses the Brascamp model, or the financial/budgetary model used in Dutch higher education). Each program has different preferences for adjusting the budget plan, so many further discussions are needed regarding fitting the outdoor education with the WUR Education Vision 2025 of each program between WUR facilities and services and the program study coordinator.

7.5 Ecological perspective

On a small scale, outdoor education comes with a risk of ecological disturbance, as mentioned by some interviewees and seen in literature. Groups of students coming into natural areas could lead to trampling of vegetation and agitating animals present in the area, which can have negative impacts on local biodiversity. The Green Vision also states that some areas (such as the Lumen nature garden and the Landschapstuin) are specifically made as ‘nature for nature’, providing strict regulations for the use of these spaces.

However, the survey indicated that the potential ecological disturbance is not seen as a major challenge to outdoor education at Wageningen Campus, having been mentioned by only 21% of respondents. Similarly, a more recent development in thinking about ecological urban disturbance is that the large-scale mosaic of habitats that human

presence creates actually increases species richness in a semi-urban environment (Pautasso, 2006).

On a longer time scale, some interviewees mentioned that the improved sustainability awareness and human-nature connectedness that outdoor education creates, leads to more pro-environmental behaviour in students. It is therefore also beneficial for nature on larger spatial and time scales; an idea supported by a wide range of literature.

This improved sustainability awareness is mentioned throughout several interviews, and is seen as an advantage of outdoor education by 40% of survey respondents. For improving human-nature connectedness, this is increased further to 61% of respondents, forming one of the most important advantages of outdoor education as perceived by the WUR community. This is reflected in the environment which participants wish for, with many interviewees wanting to be in a 'nature-like setting', and 94% of survey respondents envisioning their outdoor learning environment with just a tarp or even completely open, natural spaces. Leading to improved pro-environmental behaviour, this contributes strongly to the WUR mission of creating 'responsible change makers' for society.

With respect to the potential locations for outdoor education on campus, the greatest nature-inclusivity can be found in the Droevendaalsebos, the student farm, and the Food Forest, with the latter two forming an excellent example of healthy coexistence of humans and nature. Therefore, education in these spaces has the highest contribution to developing the abovementioned nature connectedness.

7.6 Infrastructure and operations perspective

This perspective is used to analyse what is wanted and needed from a location which is sufficient to host outdoor education. On the other hand, this perspective also addresses the accessibility of an outdoor education site.

Currently, on Wageningen Campus there are already a lot of outdoor locations, which have been discussed in the locations section. These locations have differing amounts of facilities present at site. Survey results showed that notebooks and sitting places were significantly more important than other facilities on the site, while things like a digiboard or a podium were perceived as least important. Generalising, we see that the more basic (low-tech) elements were regarded as important in an outdoor education environment. This corroborates to what was mentioned in the interviews that advanced facilities like electricity are not regarded as important. This makes every location a possible candidate for outdoor education.

On the other hand, literature states that a lack of facilities can form a barrier to educate outside. This would promote locations like the student farm, Amphitheatre, living lab or the food forest where there are a number of facilities already present. The problem with this is that most of these locations do not provide the natural setting the interviewees

said they would like to have in outdoor education even though some of them are ranked moderately high on nature inclusiveness. Only the food forest scores this amount of nature but has other downsides, such as the noise produced by the Mansholtlaan. People in the interview also share that it is important to them to be sheltered from the world and be at peace in nature. A new location would be able to adjourn to all different wants and needs of setting, facilities and other impacting factors.

Weather was one of the major concerns from the survey respondents as well as the interviewees. To counter this challenge, interviewees proposed to have some sort of shelter so the outdoor education can also take place in worse weather conditions. Almost half of the respondents of the survey choose that a wooden or tarp construction would be sufficient to shelter any education from harsh weather conditions. But almost the same number of respondents thought there was no need for a roof like construction and only choose to have sitting spots or no infrastructure at all. This fits in with the thought that was shared by one of the interviewees that there is no bad weather but only bad clothing.

Every facility that would be in place for outdoor education is prone to vandalism. This has happened before and this is why WUR needs to take this into account. Any place without facilities could still be vandalized and polluted, for example if people start using it as a spot to hang out. To prevent this, simple facilities such as a flip over or sheets to sit on could also be brought to the outdoor education site, in for example a wheelbarrow. These could be stored in secured university buildings near the site.

Survey results showed us that accessibility was perceived as the most important element of an outdoor education space. Interviewees already mentioned that they found this important, but that it also would pose a challenge. The desired natural, secluded setting of outdoor education spaces (which provides so many of the benefits of outdoor education) will in many contexts make these locations difficult to reach for students or teachers with mobility impairments. However, as physical disabilities come in many forms, the easiest way to approach this is to have educators discuss the possibilities with students on an individual, case-by-case basis.

Another accessibility challenge is the time it takes to travel to the outdoor education site. Respondents of the survey gave a mixed reaction to travel time. A very big part of the survey respondents say it might take up to half an hour while another big part does not want to travel for more than 10 minutes. Luckily, WUR has an advantageous position over other universities, which mostly lay in urban environments.

The actual scheduling of the place is also on the debate of accessibility. This is because there is a duality between the space being able to be booked through a system (which is stated by interviewees), and the space being open to spontaneous actions of people. There is no right or wrong, but both ideas can be useful.

The infrastructure and operations perspective can still be debated about a lot. This perspective shows that outdoor education is possible in locations with differing amounts of facilities and levels of accessibility.

7.7 Limitations

The limitations of our study are also considered. Our ACT project was carried out within a tight timeframe of 8 weeks and with a team of six students, which limited the time and resources available for data collection.

As a result, the number of interviews was limited and the survey was kept open for a relatively short time. Early conversations were primarily with highly interested individuals, which may have introduced some bias; however, the larger survey dataset largely confirmed the insights from these interviews, helping to balance this effect. Due to the limited time, our sample might not represent the WUR community completely.

The survey was also based on literature and the interviews, but already needed to be released before these were finished. Because of this, the final two interviews were not used to tweak the questions of the survey.

The locations have been analysed with different criteria in mind. These criteria were chosen carefully by our group to represent the most important qualities of an outdoor education site. But these the results of these criteria are semi-opinionated by our group, because they are largely not based on measurable facts. This might have an influence in how great some location might be perceived. But our group still made sound decisions based on their own findings while visiting the locations. Further research could be done on how to easily quantify if a location is suitable for outdoor education.

8. Conclusion

In conclusion, we can state that outdoor education has great potential for the WUR.

We found that there is a clear demand for outdoor education at WUR. Students and teachers are highly motivated, and they perceive a great amount of added value from outdoor education. For them, a number of suitable locations should be available, ranging from simplistic outdoor locations with low facilities, to a more high-end classroom-like setting outside.

There are some factors that currently limit outdoor education at WUR. A big part of this is the lack of knowledge and experience with outdoor education. Teacher and students are not used to outdoor education, do not know how to implement it, and might feel uncomfortable doing this. Another limitation are the rules and regulations at WUR. While there are some opportunities on the campus, sometimes these are not accessible due to regulations. Current study curricula also do not always allow for the implementation of outdoor education.

The most crucial limiting factor is the lack of suitable facilities at WUR. There is not an ideal site for outdoor education available yet on Wageningen Campus. Most current locations lack a sense of nature-connectedness, are too noisy, or lack suitable infrastructure. Nonetheless, there are a few locations on and around campus that can serve as a starting point for outdoor education. These locations are the Aurora pond, the Droevendaalsebos, the prospect site and the Food Forest. They have some downsides, but offer great potential.

To address the wants and needs of students and teachers, the WUR should encourage inclusion of outdoor education in its curricula and provide more outdoor education sites on campus. If these wants and needs are met, outdoor education can be a great success at WUR.

9. Recommendations

Overall, our findings have shown the wish for outdoor education spaces that are in a natural, secluded setting, are easily reachable, and have limited (noise) disturbance. In a hypothetical situation, the field north of the Dassenbos would be the perfect location to develop outdoor education. However, as this is legally impossible, we recommend the following locations:

- For education in a natural, secluded setting, the Droevendaalsebos is most suitable. Here, it is important to keep the space open and prevent overgrowing by brambles. If possible, creating a more easily reachable access path can also contribute to the accessibility of this space.
- For education in a very easily accessible and convenient setting (with the trade-off of it being less natural), we found the artwork corner by the Aurora pond most suitable, in part due to its close proximity to the Aurora building. This space could be enriched by creating seating possibilities (e.g. using logs), to further increase the user-friendliness, also for teachers with little to no experience teaching outside.
- For large groups and a relatively natural setting, we recommend using the prospect site. This location would also benefit from seating logs, and the potential for a tarp construction. This makes the location easier to use in various weather conditions, and for many different forms of education. Since the location is relatively separated from the busy campus life, the risk of vandalism is lower here than in many other places.
- For education in (very) small groups, and for strong human-nature connectedness, the Food Forest was found most suitable. This is well in line with the activities that currently already take place here.
- In order to create a location that suits a wider range of needs (natural, accessible, large groups, no disturbance), we see potential in developing a new place on WUR-owned land close by campus, e.g. on old testing fields. This would provide the opportunity to perform a rewilding experiment close to campus, with the explicit goal to create a space with a natural setting, which has limited (noise) disturbance, and is easily accessible. This combination of rewilding and creating the ideal outdoor education site would be an appreciated addition to Wageningen Campus, combining the innovative research at WUR with the future of facilities and education.

By implementing these recommendations, outdoor education can contribute to WUR's education goals through improving positive social dynamics among students and teachers alike, providing wider educational options at WUR, enhancing student well-being, and reinforcing sustainability awareness, pro-environmental behaviour and human-nature connectedness.

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AI Statement

During this project we made no use of AI to generate information or other materials, with the exception of generating text from interview audio. If AI was used in any other manner, it is mentioned below, in what part of the text and what the goal of the usage was. If nothing is stated below about a section, no AI was used at all. All materials adapted by AI were extensively checked for any bias or mistakes.

In the 'Context and multi-perspective problem analysis' part of the paper AI was used to increase readability by suggesting improvements in text flow and grammatical structure. These improvements were made to the text at the discretion of the writer.

In the stakeholder matrix AI is used to correct for coding errors in the visualisation of the matrix.

Furthermore during the interview we used the software from Turboscribe AI to transcribe the audio to text. This text was later reviewed manually to see if transcription was done correctly.

During the survey data analysis ChatGPT was used to write and improve R scripts regarding the analysis and the visualization, and to correct coding errors in the visualisations.

ChatGPT was also used to remove duplicates from the references and order them alphabetically.

Appendix

Appendix 1.

Interview Guide Students

Research Question	Duration	Introduction	Comments, materials, cues and attention points interviewer
	4 min	Before the interview begins, the interviewer greets the participant and establishes a relaxed environment.	Ensure a safe environment during the whole interview Chit chat a little bit before starting
		Show appreciation to the interviewee for taking the time to participate.	
		Explain the purpose of the interview: "*The goal of this interview is to explore the wants and needs of student regarding outdoor education"*	Try to not bias the student by being to positive or negative
		Explain the structure of the interview: "*The interview will take around 30 minutes. We will talk about expectations, experiences, motivations and possibilities"*	This makes it easy for the participant to know what is expected of him/her
		Assure the participant that the interview results will be anonymous: "*Your answers will remain anonymous." There are no right or wrong responses, so feel free to respond honestly*."	This promotes transparency and guarantees that the participants express their true opinions.
		Ask consent to start recording: "*The interview is being recorded in order to gather all the information for processing. The recording will be removed after it has served its purpose of gathering data. Do you give us permission?*"	The participant receives a consent form from the interviewer. The recording begins if form is filled in. Use a phone as a recording device. Try to use 2 phones to prevent problems with recording.
Topic 1: Experiences & Knowledge			
RQ1	8 min	1. What comes to mind when you hear the words 'outdoor education'?	

		2. Do you have any previous experience with outdoor education? *Follow up on 'YES': What kind of experience? How was this learning experience? How did the information from this education stick with you? Also on the WUR Campus?*	Cue: Field trips & excursions
Topic 2: Motivations			
RQ1	8 min	1. Do you think outdoor education has any benefits? *Follow up: what are these benefits? What needs do you think outdoor education fulfils?*	Cue: Wellbeing, Stress, Connecting to nature, social dynamics
		2. Do you feel more motivated when learning inside or outside? *Follow up: Why? Other factors that correlate with being inside/outside that makes you feel this way?*	
		3. What skills or knowledge do you think are possible to gain from outdoor education?	Cue: Nature
Topic 3: Expectations & Future			
RQ1 RQ2 RQ3 RQ4	8 min	1. What should an outdoor education site look like? *Follow up: Why? What courses should be taught? Do you have any option in mind at Wageningen Campus that align with these ideas?*	Cue: Teaching methods (lecture, tutorial, practical). Show the map
		2. What do you think are possible challenges with outdoor education? *Follow up: Why?*	Not only weather → Cue: logistics, nature/ecological disturbance, social structure of education
Closing questions			
	2 min	Ask the participant's demographics: • Gender • Age Study background	Collect in order to make it possible to see demographic effects.

		allow the participant to add anything that was not discussed throughout the interview. • *"Is there still anything you would like to add or clarify?"*	
		Ask the participant if they have any questions concerning the interview or the ACT project. After the interview, give your email address so he/she can ask you any follow-up questions. "*After the interview, you can also email sverre.fokkens@wur.nl with any question"*	
		Thank the participant for their participation: *"This is the end of the interview, thank you very much for participating"*	
		Stop the recording.	

Appendix 2.

Interview Guide Educators & Employees

Research Question	**Duration**	**Introduction**	**Comments, materials, cues and attention points interviewer**
	4 min	Before the interview begins, the interviewer greets the participant and establishes a relaxed environment.	Ensure a safe environment during the whole interview Chit chat a little bit before starting
		Show appreciation to the interviewee for taking the time to participate.	
		Explain the purpose of the interview: "*The goal of this interview is to explore the wants and needs you as educator regarding outdoor education"*	Try to not bias the participant by being to positive or negative
		Explain the structure of the interview: "*The interview will take around 30 minutes. We will talk about expectations, experiences, motivations and possibilities"*	This makes it easy for the participant to know what is expected of him/her
		Ask the interviewee if he/she agrees with the use of their name in our output. If not, assure them that their results will be only anonymously used. **Consent to use name** → *"Thank you for participating and giving consent to use your name. This will help the credibility of our findings."* **No consent / anonymously** → Assure the participant that the interview results will be anonymous: "*Your answers will remain anonymous." There are no right or wrong responses, so feel free to respond honestly*."	 **Non-anonymous** → This gives our results credibility, because we can refer to experts **Anonymous** → This promotes transparency and guarantees that the participants express their true opinions.
		Ask consent to start recording: "The interview is being audio recorded in order to gather all the information for processing. The recording will be removed after it has served its purpose of gathering data. Do you give us permission?"	The participant receives a consent form (**either anonymous or personalized)** from the interviewer. The recording begins if form is filled in.

			Use a phone as a recording device. Try to use 2 phones to prevent problems with recording.
Topic 1: Experiences & Knowledge			
RQ1	8 min	3. What comes to mind when you hear the words 'outdoor education'?	
		4. Do you have any previous experience with outdoor education? *Follow up on 'YES': What kind of experience? Also on the WUR Campus?*	Cue: Field trips & excursions Show the map
Topic 2: Motivations			
RQ1	8 min	4. Do you think outdoor education has any benefits? *Follow up: what are these benefits? What needs do you think outdoor education fulfils?*	Cue: Wellbeing, Stress, Connecting to nature, social dynamics (of students)
		If interviewee is an educator → 5. Do you feel more motivated when teaching inside or outside? *Follow up: Why? Other factors that correlate with being inside/outside that makes you feel this way?*	
		6. What skills or knowledge do you think are possible to gain from outdoor education?	Cue: Nature
Topic 3: Expectations & Future			
RQ1 RQ2 RQ3 RQ4	9 min	3. What should an outdoor education site look like? *Follow up: Why? What courses should be taught? Do you have any option in mind at Wageningen Campus that align with these ideas?*	Cue: Teaching methods (lecture, tutorial, practical). Facilities, materials. Environmental courses or also other courses?
		4. What do you think are possible challenges in the outdoors? *Follow up: Why?*	Not only weather → Cue: logistics, nature/ecological disturbance, social structure of education
Closing questions			

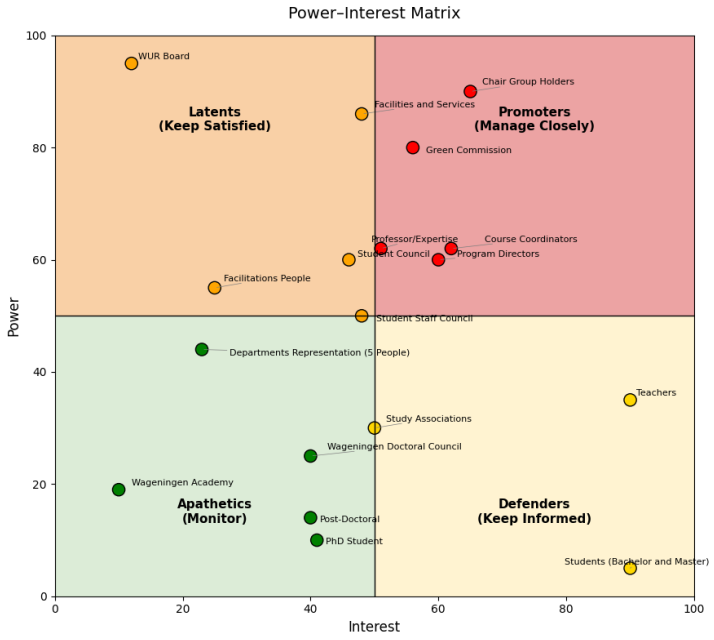
	2 min	Ask the participant's demographics: • Gender • Age Job/Function (within WUR) allow the participant to add anything that was not discussed throughout the interview. • *"Is there still anything you would like to add or clarify?"*	Collect in order to make it possible to see demographic effects.
		Ask the participant if they have any questions concerning the interview or the ACT project. After the interview, give your email address so he/she can ask you any follow-up questions. "*After the interview, you can also email sverre.fokkens@wur.nl with any question"*	
		Thank the participant for their participation: *"This is the end of the interview, thank you very much for participating"*	
		Stop the recording.	

Appendix 3.

Stakeholder analysis

This project assumed that there are two different types of stakeholders: active stakeholders and passive stakeholders. An active stakeholder assumes a role in the process, can express their point of view, manage societal change, and coordinate other actors. In contrast, a passive stakeholder may be addressed but not included in the project (Hellsten et al., 2019).

The figure depicts the stakeholder matrix analysis using the power-interest matrix model. The original ideas of the power-interest matrix were introduced by Johnson & Scholes (1999) when they were looking at the influence of stakeholders on the implementation of a specific program or project. This matrix has a benefit to gain a better understanding of the communication patterns and relations among stakeholders (Caputo, 2013; Nguyen & Mohamed, 2018).



Power-interest matrix

This stakeholder matrix employs a based assumption (and later during the survey and interview the revision is possible to gain a response from the stakeholders) for weighting and positioning, based on secondary data and information (e.g., official website, commissioner information and other relevant sources). This matrix only depicts potential active stakeholders, as we classify passive stakeholders as Apathetic; the list is available below the text.

The primary stakeholders would be in the Promoters (managed closely) zone, which has a higher interest and greater power to conduct outdoor education. Stakeholders involved in

this dimension, as characterized in the education and curriculum developer (e.g., course coordinator, chair group holder, program directors), who teach the course in specific expertise (e.g., professors/experts), also have concerns regarding the green aspect of the campus, such as the green commission. For teachers and students here is individual no collective position so they have a lower power.

The other potential stakeholder is also in the Defenders (keep informed) zone, which includes students (both in bachelor's and master's degrees), who teach the course in general learning activities (e.g., professors/experts), and students who are involved in the study associations. These stakeholders potentially provide valuable feedback on the projects through the process and implementation of outdoor education. Also, the professors/experts as an individual no collection representation in this matrix.

In this project, we will focus on the promoters when the stakeholder has high power and high interest in the issues of outdoor education, while also considering several stakeholders who have a significant opportunity to be influenced by the promoters' actions. The list of these stakeholders includes teachers, students, course coordinators, chair group holders, program directors, professors/experts (for those who teach a specific course), and the Green Commission.

No.	Stakeholder	Power	Interest	Strategy
1	Teachers	35	90	Keep Informed (Low Power, High Interest)
2	Students (Bachelor and Master)	5	90	Keep Informed (Low Power, High Interest)
3	Facilitations People	55	25	Keep Satisfied (High Power, Low Interest)
4	Course Coordinators	62	62	Manage Closely (High Power, High Interest)
5	Chair Group Holders	90	65	Manage Closely (High Power, High Interest)
6	Program Directors	60	60	Manage Closely (High Power, High Interest)
7	Departments Representation (5 People)	44	23	Monitor (Low Power, Low Interest)
8	Student Council	60	46	Keep Satisfied (High Power, Low Interest)
9	Student Staff Council	50	48	Keep Satisfied (High Power, Low Interest)
10	Study Associations	30	50	Keep Informed (Low Power, High Interest)
11	Wageningen Doctoral Council	25	40	Monitor (Low Power, Low Interest)

12	PhD Student	10	41	Monitor (Low Power, Low Interest)
13	Post-Doctoral	14	40	Monitor (Low Power, Low Interest)
14	Professor/Expertise	62	51	Manage Closely (High Power, High Interest)
15	WUR Board	95	12	Keep Satisfied (High Power, Low Interest)
16	Green Commission	80	56	Manage Closely (High Power, High Interest)
17	Facilities and Services	86	48	Keep Satisfied (High Power, Low Interest)
18	Wageningen Academy	19	10	Monitor (Low Power, Low Interest)

Note:

a. **Active Stakeholder:**
   - **Manage Closely** (High power, High interest):
   - **Keep Informed** (Low power, High interest):
   - **Keep Satisfied** (High power, Low interest):
   - **Monitor** (Low power, Low interest):

b. **Other active stakeholders**: we have an input to include Wageningen Biodiversity Working Group; however, we have a lack information to include them into the stakeholder matrix and further discussion needed to fix the weighting and position.

c. **Passive stakeholders** (low power, high interest) may be addressed but not included in the project but have an ability through the academic process and the reputation of the university.
   - **Nature**: Physical green facilities (park, field, forest campus, other open space), Campus Biodiversity (including flora and fauna around campus), and microclimate around campus.
   - **Human**: Security and Cleaning Staff, Residence near campus, and Alumni

Appendix 4.

The codebook of the interviews.

Code	Codegroup	Theme	Number of quotes
Incompetence in outdoor education	Educational Challenges	Challenges in Outdoor Education	4
Lack of Controll in outdoor education	Educational Challenges	Challenges in Outdoor Education	2
Little to no offer of outdoor education	Educational Challenges	Challenges in Outdoor Education	3
Not suitable for Outdoor Education	Educational Challenges	Challenges in Outdoor Education	1
Burdens of outdoor education	General Challenges	Challenges in Outdoor Education	5
Challenge	General Challenges	Challenges in Outdoor Education	3
Challenge: Afraid of the outside	Mental Challenges	Challenges in Outdoor Education	1
Comfortzone	Mental Challenges	Challenges in Outdoor Education	2
Neophobia	Mental Challenges	Challenges in Outdoor Education	1
Outside is distracting	Mental Challenges	Challenges in Outdoor Education	11
Taboo	Mental Challenges	Challenges in Outdoor Education	3
uncomfortable in outdoor education	Mental Challenges	Challenges in Outdoor Education	9
Accidents	Practical challenges	Challenges in Outdoor Education	1
Clothing	Practical challenges	Challenges in Outdoor Education	1
Money	Practical challenges	Challenges in Outdoor Education	2
Classic way of learning/class	Form of Education	Educational Approaches & Methods	4
Fieldwork / Excursions	Form of Education	Educational Approaches & Methods	16
Form of education (lecture/tutorial/etc)	Form of Education	Educational Approaches & Methods	19
Learning material	Form of Education	Educational Approaches & Methods	4
Practical education	Form of Education	Educational Approaches & Methods	2

Regular Education in an outside setting	Form of Education	Educational Approaches & Methods	15
Self Study	Form of Education	Educational Approaches & Methods	5
standardization of education	Form of Education	Educational Approaches & Methods	2
Study Programmes	Form of Education	Educational Approaches & Methods	7
Walking	Form of Education	Educational Approaches & Methods	3
(in)formality	Pedagogical concepts	Educational Approaches & Methods	2
Forest School	Pedagogical concepts	Educational Approaches & Methods	2
learning by experience	Pedagogical concepts	Educational Approaches & Methods	1
Personal Character of Teacher	Teacher influences	Educational Approaches & Methods	2
Teacher influence	Teacher influences	Educational Approaches & Methods	2
Calmness	Atmosphere	Learning Environment Characteristics	7
Cars /Road	Atmosphere	Learning Environment Characteristics	1
Focus	Atmosphere	Learning Environment Characteristics	7
Natural Setting	Atmosphere	Learning Environment Characteristics	12
Noise	Atmosphere	Learning Environment Characteristics	5
Quietness	Atmosphere	Learning Environment Characteristics	4
Space	Atmosphere	Learning Environment Characteristics	5
Connection to reality	Cognitives	Learning Needs & Outcomes	7
More memorable	Cognitives	Learning Needs & Outcomes	9
Need to be outside for learning	Outdoor Learning Needs	Learning Needs & Outcomes	15
Right to have outside experience	Outdoor Learning Needs	Learning Needs & Outcomes	2
Oxygen	Primal needs	Learning Needs & Outcomes	2
Primitive Needs	Primal needs	Learning Needs & Outcomes	2

Surviving	Primal needs	Learning Needs & Outcomes	1
Creativity	Skills and Development	Learning Needs & Outcomes	5
Language development	Skills and Development	Learning Needs & Outcomes	3
Reflection	Skills and Development	Learning Needs & Outcomes	3
Connecting with Nature	Connection to nature	Nature & Environment	19
Learning about nature	Connection to nature	Nature & Environment	6
Nature Disruption	Connection to nature	Nature & Environment	6
Relation with Nature	Connection to nature	Nature & Environment	6
Understanding Nature	Connection to nature	Nature & Environment	3
Use of nature	Connection to nature	Nature & Environment	6
View on nature	Connection to nature	Nature & Environment	4
Amphitheater	Locations	Nature & Environment	4
Current buildings	Locations	Nature & Environment	3
Dassenbos	Locations	Nature & Environment	3
Droevendaal	Locations	Nature & Environment	2
Example Outdoor education location	Locations	Nature & Environment	17
Food Forest	Locations	Nature & Environment	2
Research station	Locations	Nature & Environment	4
Scouting	Locations	Nature & Environment	1
The Field	Locations	Nature & Environment	3
Combi room	Infrastructure and Facilities	Practical Conditions	2
Desks	Infrastructure and Facilities	Practical Conditions	4
Electronics	Infrastructure and Facilities	Practical Conditions	5
Facilities	Infrastructure and Facilities	Practical Conditions	23
Fire	Infrastructure and Facilities	Practical Conditions	5
Hufterproof	Infrastructure and Facilities	Practical Conditions	2
Inconspicuousness	Infrastructure and Facilities	Practical Conditions	1
Laptop	Infrastructure and Facilities	Practical Conditions	3
Lecture room	Infrastructure and Facilities	Practical Conditions	1
Lighting	Infrastructure and Facilities	Practical Conditions	1
Minimalistic (Infrastructure)	Infrastructure and Facilities	Practical Conditions	8
Path	Infrastructure and Facilities	Practical Conditions	2
Plants	Infrastructure and Facilities	Practical Conditions	1
Roof	Infrastructure and Facilities	Practical Conditions	6
Shelter	Infrastructure and Facilities	Practical Conditions	3
Sitting / Seated / Seats	Infrastructure and Facilities	Practical Conditions	16
Storage	Infrastructure and Facilities	Practical Conditions	2
Study Place	Infrastructure and Facilities	Practical Conditions	1

Toilet	Infrastructure and Facilities	Practical Conditions	6
Accessibility for Disabled People	Logistics	Practical Conditions	4
Close to campus	Logistics	Practical Conditions	3
Size of location	Logistics	Practical Conditions	3
Travelling time	Logistics	Practical Conditions	5
Weather conditions	Weather and Environment	Practical Conditions	14
Booking system	Rules and systems	Regulations & Formalities	2
Regulations / Rules	Rules and systems	Regulations & Formalities	1
Schedule	Rules and systems	Regulations & Formalities	2
Change of scenery	Alternation between inside and outside	Social & Psychological Factors	4
Difference between outside and inside	Alternation between inside and outside	Social & Psychological Factors	3
Stimulating	Alternation between inside and outside	Social & Psychological Factors	2
Variety	Alternation between inside and outside	Social & Psychological Factors	3
Dopamine	Emotions and Wellbeing	Social & Psychological Factors	1
Emotions / Feelings	Emotions and Wellbeing	Social & Psychological Factors	4
Energy level	Emotions and Wellbeing	Social & Psychological Factors	1
Enjoyment	Emotions and Wellbeing	Social & Psychological Factors	3
Freedom	Emotions and Wellbeing	Social & Psychological Factors	4
Fulfilment	Emotions and Wellbeing	Social & Psychological Factors	1
Mindset	Emotions and Wellbeing	Social & Psychological Factors	4
Motivation	Emotions and Wellbeing	Social & Psychological Factors	5
Relaxed	Emotions and Wellbeing	Social & Psychological Factors	4
Stress	Emotions and Wellbeing	Social & Psychological Factors	5
Type of students	Emotions and Wellbeing	Social & Psychological Factors	2
Vibrant memories	Emotions and Wellbeing	Social & Psychological Factors	1

Wellbeing	Emotions and Wellbeing	Social & Psychological Factors	4
Conflicts	Social dynamics	Social & Psychological Factors	1
Connection with peers	Social dynamics	Social & Psychological Factors	5
Gender	Social dynamics	Social & Psychological Factors	2
Group Dynamics	Social dynamics	Social & Psychological Factors	5
Group size	Social dynamics	Social & Psychological Factors	3
Social Activity	Social dynamics	Social & Psychological Factors	3
Social balance	Social dynamics	Social & Psychological Factors	7

Appendix 5.

The questions and flow of the survey.

Survey Flow

Block: Default Question Block (8 Questions)
Standard: Block 1 (4 Questions)
Standard: Block 2 (2 Questions)
Standard: Block 3 (1 Question)

Branch: New Branch
If
If What is your role at WUR? Bachelor Student Is Selected
Or What is your role at WUR? Master Student Is Selected

Standard: Block 5 (Students) (6 Questions)

Branch: New Branch
If
If What is your role at WUR? Bachelor Student Is Not Selected
And What is your role at WUR? Master Student Is Not Selected

Block: Block 5 (Teacher) (3 Questions)

Block: Block 6 (1 Question)

Page Break

Start of Block: Default Question Block

Q1 Thank you for taking this survey. We are an ACT group looking into the wants, needs and motivations of Wageningen Campus users regarding Outdoor Education. The survey will takes about 5 minutes and your results will be anonymously processed.

Page Break

Q2 What's your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

Q23 What's your age?

	0 10 20 30 40 50 60 70 80 90 100
Age ()	

Q3 What is your role at WUR?

- ○ Bachelor Student (1)
- ○ Master Student (2)
- ○ PhD (3)
- ○ Post-Doc (4)
- ○ Teacher (5)
- ○ Researcher (non-teaching) (6)
- ○ Professor (7)
- ○ Other (8) _____

Display this question:

If What is your role at WUR? = Bachelor Student

Q21 What bachelor study program are you in?

▼ Agrotechnologie (1) ... Tourism (22)

Display this question:

If What is your role at WUR? = Master Student

Q22 What master study program are you in?

▼ Agroecology (double degree) (1) ... Water Technology (joint degree) (45)

Page Break

Q4 What interest do you have in participating in outdoor education?

- None at all (1)
- A little (2)
- A moderate amount (3)
- A lot (4)
- A great deal (5)

Q7 Do you think outdoor education has added value to a course curriculum?

- None at all (1)
- A little (2)
- A moderate amount (3)
- A lot (4)
- A great deal (5)

End of Block: Default Question Block

Start of Block: Block 1

Q5 What form of education would you think is suitable for outdoor education?

- [ ] Lecture (1)
- [ ] Tutorial (2)
- [ ] Practical (3)
- [ ] Self-Study (4)
- [ ] Fieldwork (5)
- [ ] Excursion (6)

Page Break

Q6 How important are the following facilities for an outdoor education environment?

	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)
Laptops (1)	○	○	○	○	○
Notebooks (2)	○	○	○	○	○
Sitting spots (3)	○	○	○	○	○
Sitting pads (4)	○	○	○	○	○
Whiteboard / blackboard (5)	○	○	○	○	○
Power (outlets) (6)	○	○	○	○	○
Internet connection (7)	○	○	○	○	○
Digital board (8)	○	○	○	○	○
Permission to make fire (9)	○	○	○	○	○
Desks (10)	○	○	○	○	○
Podium (11)	○	○	○	○	○
Accessibility (12)	○	○	○	○	○

Q8 What is the time in minutes that you are willing to travel to an outdoor education site?

	0	5	10	15	20	25	30
Time ()							

Q9 How focused/distracted do you think you are in an outdoor education site?

- ○ Very distracted (1)
- ○ Slightly distracted (2)
- ○ Neutral (3)
- ○ Slightly focused (4)
- ○ Very focused (5)

End of Block: Block 1

Start of Block: Block 2

Q10 Which of the following qualities/advantages do you associate with outdoor education?

- [ ] Increasing connection among students (1)
- [ ] Understanding human-nature relations (2)
- [ ] Improved social and personal development (3)
- [ ] Recharging yourself (4)
- [ ] Improved sustainability awareness (5)
- [ ] Improving personal learning process (6)
- [ ] Enhancing positive moods (7)
- [ ] Other (8) _____

Q11 Which of the following disadvantages/challenges do you associate with outdoor education?

- [ ] Too many rules and regulations (1)
- [ ] Lack of motivation from the WUR decisionmakers (2)
- [ ] Distance between decisionmakers and students/teachers (3)
- [ ] Budget constraints (4)
- [ ] Teachers uninformed about outdoor education (5)
- [ ] Too large class sizes (6)
- [ ] Attachment to traditional education styles (7)
- [ ] Differing views on education goals (8)
- [ ] Skepticism about outdoor education (9)
- [ ] Ecological disturbance (10)
- [ ] Challenging weather conditions (11)
- [ ] Lack of facilities (e.g. toilets, seating, electricity) (12)
- [ ] Other (13) _____

End of Block: Block 2

Start of Block: Block 3

Q13 To what extent should you be sheltered from the elements during OE?

- ○ Complete building with glass walls in nature (1)
- ○ Only wooden/tarp roof construction (2)
- ○ Only open sitting places (3)
- ○ No infrastructure at all (4)

End of Block: Block 3

Start of Block: Block 5 (Students)

Q15 Statement: It is important to me to be able to choose outdoor activities that fit my interests and learning goals.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Q16 Statement: Students should be informed about the purpose of participating in an outdoor course in respect about individual feelings and comfort.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Q17 Statement: I will participate in an outdoor education session if the challenges match my study program goals.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Q18 Statement: I prefer outdoor education sessions when I get constructive feedback on both the natural environment and the learning activities.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Q19 Statement: I am more likely to participate in outdoor education if the learning environment encourages mutual respect and care among students.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Q20 Statement: I would choose this program if it promotes an inclusive environment and prioritizes student safety.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

End of Block: Block 5 (Students)

Start of Block: Block 5 (Teacher)

Q24 Which frameworks / education styles are you familiar with?

- ☐ Project-based learning (1)
- ☐ Challenge-based learning (2)
- ☐ Experiential learning (3)
- ☐ Place-based education (4)
- ☐ Nature-inclusive teaching (5)
- ☐ Wild pedagogies (6)
- ☐ Other (7) _____
- ☐ None of the above (8)

Display this question:

If Which frameworks / education styles are you familiar with? != None of the above

Q26 Which framework(s) / education style(s) would you prefer to use in an outdoor setting?

- ☐ Project-based learning (1)
- ☐ Challenge-based learning (2)
- ☐ Experiential learning (3)
- ☐ Place-based education (4)
- ☐ Nature-inclusive teaching (5)
- ☐ Wild pedagogies (6)
- ☐ Other (7) _____
- ☐ None of the above (8)

Q30 If you have any additional comments, you can leave them here.

_____

_____

_____

_____

End of Block: Block 5 (Teacher)

Start of Block: Block 6

Q27 Optional: If you would like to participate in the giftcard raffle, please leave your email down below. (Your email will not be used for any other purpose)

_____

_____

_____

_____

_____

End of Block: Block 6

Appendix 6.

All locations and the ratings on the criteria.

Location	Max Group Size	Accessibility	Noise Level	Nature-Inclusiveness	Seclusion	Facilities	Suitable For
The Farm	30	Medium	Low–Medium (current situation) Medium-High (future situation)	High	Medium–High	Storage (shed, caravan), campfire spot	Workshops, nature/agriculture/beekeeping education
The Prospect Site	70	Medium	Low–Medium	High	Medium–High	Close to Aurora, potential storage	Lecture-style or small-group education
Field North of The Dassenbos	30	Medium	Low	High	High	None	Botany/forest management small
Artwork Corner by Aurora Pond	30	Good	Low–Medium	Medium–High	Medium	Bathrooms + storage at Aurora	Small lectures/workshops with scenic view
Actio field	30	Good	Medium–High	Low	Low	None (Actio unavailable)	Not recommended for outdoor education
Amphitheatre	100	Good	Low	Low	Medium (can be closed off)	Power, water, seating	Large lecture-style education
Living Lab	30	Good	Medium–High	Medium	Low	Bathrooms nearby, electricity available	Small lectures, workshops, vegetation/insect/water
Landschapstuin	30	Good	High (Mansholtlaan)	Medium	Low	Close to Omnia/Atlas	Outdoor lectures only if noise mitigated
Lumen nature garden	10	Good	Medium	High	Low	Close to Lumen	Not suitable due to restrictions
Droevendaalsebos	30	Poor	Low	High	Medium-High	None	Small workshops (not recommended for development)
Food Forest	40	Medium	High (Mansholtlaan)	Very High	Medium-High	Bathrooms + storage at Droevendaal	Workshops/excursions, nature-focused
De Hoge Born	30	Good	Low	High	High	Fire making permission	Workshops, small groups, small lectures
De Leemkuil	50	Medium-Good	Low	Very High	High	None	Workshops, small to medium lectures
New space	Variable	Variable	Variable	High (potential)	Variable	To be developed	Custom outdoor education development