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Nature, freedom and discovery in Physical Education – Analysis of the implementation of free exploration in nature in PE classes

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Abstract

Nowadays, Environmental Education (EE) programs primarily provide opportunities for organized teaching and studying strictly controlled by educators. As far as free explorational experiences in nature are concerned, their positive effects on the development of environmental consciousness are often overlooked. Based on Csonka and Varga (2019), these experiences should be made a very important part of children's life so that they can later develop a strong ecological identity. Interestingly, the firmly structured EE programs are more likely to trigger negative emotions towards nature. Furthermore, the Physical Education (PE) framework for primary schools of the 2012 Hungarian National Core Curriculum requires indirectly the mandatory implementation of free exploration in nature in PE classes (Csonka, 2019). Based on previous findings, the main focus of the present study is the PE Framework Curricula related to the 2020 Hungarian National Core Curriculum in terms of the prevalence of free exploration in nature. As part of a pilot research, the implementation of free exploration in nature was also analyzed regarding grade 1-4 PE classes, sporting events and camps. It can be considered a novel result that the 2020 PE Framework Curricula do not involve the implementation of free exploration in nature was also analyzed regarding grade 1-4 PE classes between the previous teaching practices and the 2012 PE Framework Curricula do not involve the implementation of free exploration in nature, and there have been differences between the previous teaching practices and the 2012 PE Framework Curriculum.

Keywords: Environmental Education; free exploration, curriculum, Physical Education

1. Introduction

Based on the 2019 IPCC Special Report on Climate Change, it is clear that the consequences of climate change hover over our heads like the sword of Damocles. The environmental effects of positive feedbacks tend to be more frequent, extensive and unpredictable nowadays, and this tendency is expected to continue in the coming decades. The responsibility of mankind for climate change and other related ecological problems, such as loss of biodiversity, air pollution, land degradation, fresh water shortages, chemical pollution and wildfires is becoming less and less unquestionable. In order to mitigate our losses we need instant change, for which research results in both Natural and Social Sciences are equally important.

In the case of the latter, pedagogy has the potential to induce radical alterations forming children's environmental awareness from a very early age. Diverse and increasingly effective environmental pedagogical methods can help establish an ecological worldview that can lead to environmentally conscious behaviour in the future. Pedagogical methods implemented by the integration of different subjects can be particularly effective, but they are often either not found in the curricula or, if they are, not integrated into the actual pedagogical practice. This is represented by Vlček et al. (2019), who also found that although the integration of geography and physical education subjects appears as a goal in lower curricula in the Czech Republic and Slovenia, it is not implemented at all in practice. According to Wortley (1994), physical education teachers also have a responsibility to build a positive attitude in students towards the environment, such as the countryside, thereby helping to preserve sports and recreational spaces. However, his curriculum surveys conducted in Britain in the early 1990s did not find integration between the environmental education and physical education, besides this, it would be important to carry out similar analysis in current curricula in as many countries as possible. The current study introduces a lesser-known environmental pedagogical opportunity, previously referred to as free exploration in nature in Csonka and Varga (2019), which can be integrated, among other subjects, principally into PE classes. Free exploration in nature provides the feeling of freedom and discovery in a natural environment. Typical examples to this are outdoor games, family trips, summers in the countryside or lonely walks in the forest. Within the school context it refers to free play and activity in nature under teacher supervision. Csonka and Varga (2019) demonstrated that these experiences should be made a very important part of children's life so that they can later develop a strong ecological identity. Furthermore, the Physical Education framework for Primary Schools of the 2012 Hungarian National Core Curriculum requires indirectly the mandatory implementation of free exploration in nature during PE classes (Csonka, 2019), which further emphasizes the importance of promoting free exploration in nature in education. At the same time, the publishing of the PE Framework Curricula related to the new 2020 Hungarian National Core Curriculum will necessitate the reevaluation of the Csonka (2019) study. In the present study, after the clarification of the basic concepts and a brief review of the previous results, the new PE Framework Curricula, as well as parts of the 2020 Hungarian National Core Curriculum related to PE are examined in terms of the prevalence of free exploration in nature. As part of a pilot research, the implementation of free exploration in nature was also analysed in grade 1-4 PE classes, camps and at sporting events by using PE teacher interviews. Regarding the application of free exploration in nature, physical education teachers also have an insight into the latter two, which is why these programs were included in the study besides physical education classes. Although in the present research free exploration in nature has been examined primarily in the context of PE, we should not limit the possibilities of this experience to PE education alone. These could include, among others, geography, biology, ethics, environmental education classes, daycare, Forest Schools, class trips, study trips, and school events. In addition, by examining and comparing several foreign curricula, the analysis of free exploration in nature in an international context should be a priority area of research in the future. The examination of historical changes in the application of free exploration in nature is also an important area of research, which is made possible by a comparative analysis of past and existing curricula. The present study also includes the findings of the comparative analysis of Physical Education in the 2020 and 2012 Hungarian National Core Curriculum and their PE Framework Curricula in terms of the prevalence of free exploration in nature.

2. Ecological identity and free exploration in nature

The formation of ecological identity is not only an extremely important aspect of personality development in environmental education but it also plays an important role in the research related to free exploration in nature. In view of this, one would wonder how ecological identity could be defined. According to Thomashow (1995), "ecological identity refers to all the different ways people construe themselves in relation to the Earth…" (Thomasow, 1995, p.3.). Both social interactions and direct contact with nature can shape our ecological identity. The concept is used to describe the extent of our emotional attachment and sense of unity towards nature. Ecological identity is a kind of collective identity that can determine how much we feel connected to non-human forms of life (Clayton, 2003). Csonka and Varga (2019) examined how the experience of free exploration in nature can influence the development of ecological identity.

Based on the hypothesis outlined in Csonka and Varga (2019), the impact of free exploration on the formation of ecological identity is more significant than that of other factors. Csonka and Varga (2019) compared the experiences of twelve Environmental Studies students to those of twelve Engineering students in using ecological identity scales and narrative interviews.

The first measure Csonka and Varga (2019) used to analyse ecological identity was the Environmental Identity Scale (Clayton, 2003), which consists of eleven statements to be valued by the interviewees on a 1-5 Likert scale. The statements measure the intensity of physical and emotional connectedness to nature together with the willingness to protect it. The second

ecological identity scale used in the research (Csonka and Varga, 2019) was the Inclusion in Nature of Self Scale (Schultz, 2001), in which the interviewees had to choose one of various illustrations that best described their contact with nature. Both scales (Clayton, 2003) (Schultz, 2001) indicated that the ecological identity of the Environmental Studies students were more developed than that of the Engineering students.

Csonka and Varga (2019) used narrative interview method to map the factors determining the professional interests of both student groups (based on: Palmer and Neal, 1994), as well as the their strong emotional experience related to nature (based on: Piskóti, 2015). We can conclude that free exploration, social interactions and education were the most common categories of experience of professional interest in both of the interviewed groups. The second narrative interview (used by Csonka and Varga, 2019) resulted, that free exploration and social interactions being the most common categories of strong emotional experience related to nature in both student groups. Interestingly, it was the group with the less developed ecological identity (Engineering students) that mentioned more organized programs in their interviews, and considered them more of a negative experience.

To conclude, organized programs sometimes contradict our aims in environmental education as they negatively affect ecological identity. Professional interests and strong emotional experience related to nature are principally connected to free exploration rather than to organized programs. A more extended research in this field might be necessary, and in case Csonka and Varga's (2019) results can be confirmed, we should reevaluate the current environmental education methods putting more emphasis on unstructural and free discovery of nature (Csonka and Varga, 2019). Similarly to the study of Csonka and Varga (2019), Palmer and Neal (1994) also found that environmental education teachers most often trace the development of their professional interest to their childhood experiences in nature. Konyha (2011) also draws attention to the importance of leisure activities in nature in the shaping of our environmental attitude, whereas Piskóti (2015) showed the importance of childhood family trips and summers in the countryside in the development of environmental awareness.

It was the previous findings outlined in Csonka and Varga (2019), based on which the implementation of free exploration in nature was later analysed within the 2012 Hungarian National Core Curriculum and its Framework Curricula (see: Csonka, 2019). Although the 2012 Hungarian National Core Curriculum does not involve free explorational activities in nature as obligatory element, they can be found in the PE framework curriculum for grades 1-4. The wording "free movement in nature" in the curriculum implicitly refers to free exploration in

nature. At the same time, the publishing of the new 2020 Hungarian National Core Curriculum and its Framework Curricula will necessitate a re-evaluation of the study to be able to map potential educational trends. In the present study, PE education in the 2020 Hungarian National Core Curriculum and the 2020 PE Framework Curricula were examined in terms of the prevalence of free exploration in nature.

In a pilot research, Csonka (2019) also examined the actual implementation of free exploration in nature for both eco and non-eco-schools, with five institutions having been examined accordingly. Quite surprisingly however, while eco-schools have more environmental education programs, some of which are implemented in nature, they implement less free exploration in nature compared to non-eco schools, but at the same time these programs involve more constraints and less free time in nature. According to Csonka and Varga (2019), the lack of free exploration and strictly organized programs can have, in many cases, a negative impact on the development of ecological identity. Based on Csonka (2019), it would be particularly important to carry out comprehensive research in this field, as in the education system of ecoschools students are increasingly prone to become emotionally detached from nature.

One of the findings of Csonka's (2019) pilot research is that there can be differences between the curriculum and the actual practice. Only one of the interviewed institutions riported free exploration in nature to be part of their PE classes. On the other hand, the results indicated by Csonka (2019) are questionable as no specific questions were included in the interview regarding the implementation of free exploration in nature during PE classes, the research focused merely on the prevalence of free exploration in nature in school programs in general. In order to be able to map potential differences, the present pilot research focuses primarily on the prevalence of free exploration in nature, analysed specifically in relation to PE classes in grades 1-4 of primary schools.

3. Examination of the prevalence of free exploration in nature in grades 1-4 of primary schools

In the following, the prevalence of free exploration in nature in primary schools will be examined for grades 1-4. The reason for the examination, on one hand, is that early childhood experiences play a significant role in the development of ecological identity (Csonka and Varga, 2019), and, on the other hand, it is the PE framework curriculum for grades 1-4 published in 2012, which indirectly involves free exploration in nature as an educational tool (Csonka,

2019). As a result, the new PE Framework Curricula published in 2020 and the previous PE practices were examined in this research.

3.1. Examination of the 2020 Hungarian National Core Curriculum and PE Framework Curricula

3.1.1. Analyzing method

The analysis of Physical Education in the 2020 Hungarian National Core Curriculum and its PE Framework Curricula documents was carried out with keyword search (e.g. free movement, discovery, nature) and perusal of the details of the documents. The relevant findings are included in the next section.

3.1.2. Results

Based on the conducted research, as opposed to the previous PE Framework Curriculum for grades 1-4. neither the section related to Physical Education of the 2020 Hungarian National Core Curriculum nor its PE Framework Curricula cite the implementation of free exploration in nature. Nevertheless, the application of free exploration in nature can contribute substantially to achieving the goals set in the new PE Curricula. Besides encouraging engagement in outdoor activities, it can enhance environmental awareness and education for environmental protection and sustainability, all of which can be found among the goals set in the Physical Education Framework Curricula.

It can also provide various opportunities to obtain empirical evidence, experience acquired by means of the senses, and in the case of pupils in lower grades, in line with the PE Framework Curriculum, it is also suitable to increase independence and improve self-help skills. It can facilitate the development of self-knowledge, self-image and emotions (see Csonka and Varga, 2019 research on ecological identity), and be both an effective recreational and anti-stress tool (see: Kaplan and Kaplan, 1989).

Many of the outdoor activities mentioned in the curricula can be associated with the experience of free exploration in nature, such as hiking or the mere planning of hiking, orienteering, water games, ball games or cycling. In addition, it can be involved in outdoor physiotherapy, help to improve spatial orientation and endure bad weather while doing sports, or can educate children about folk games, facilitated significantly by children living in urban and rural areas casually exploring nature together. Thus, it is clear that despite the fact that free exploration in nature has been removed from the Physical Education Curricula, it can help to achieve educational goals in so many different ways.

Another conclusion of the study is that this educational element can also help fulfill the requirements of the 2020 Environmental Studies and Ethics Framework Curricula by the development of a positive emotional attitude towards nature and the formation of an environmentally conscious behaviour. Similarly, the Ethics and Environmental Studies Curricula for grades 1-4 were put under the microscope on the grounds of Csonka's (2019) results, who came to a similar conclusion when analysing the Framework Curricula published in 2012. However, the question then arises: to what extent was free exploration in nature prevalent in the educational practice related to PE classes in grades 1-4 during the validity period of the 2012 Hungarian National Core Curriculum? Could this educational element in the Framework Curriculum have had an impact on pedagogical practices? In the following section, the pilot research aimed at obtaining answers to the above will be presented.

3.2. Presentation of pilot research

3.2.1. Research methodology

The prevalence of free exploration in nature in PE classes was examined in a pilot study. The aim of the research was to map the prevalence of free movement outdoors, but not in nature, and free exploration in nature to see how familiar teachers are with this element of the Framework Curriculum. In addition, educators also shared their experiences regarding the potential benefits of the above. It was difficult to reach the teachers during the summer, so in the present research the teachers of sports schools were not specifically interviewed. In the future, it would also be important to conduct research comparing sports schools and regular schools in terms of the prevalence of free exploration in nature.

PE teachers in grades 1-4 and teachers whose job involves, among others, PE education have been interviewed. 10 teachers from 9 educational institutions were interviewed. Some teacher are currently not teaching PE but taught the relevant age group during the validity of the Hungarian National Core Curriculum published in 2012, engage in educational activities in different schools. Educators had to answer 12 questions (see: Appendix) via telephone interviews (in some cases the questions were asked in past tense due to the above).

Regarding some of the questions, a percentage estimate had to be given for the actual implementation of free movement outdoors, but not in nature and free exploration in nature in

PE classes and school programs, compared to strictly organized programs. Other questions concerned the benefits of physical education outdoor, but not in nature, and physical education in nature, and most importantly, the benefits of free movement outdoors, but not in nature, and those of free exploration in nature. The answers to the questions also provide information on the prevalence and potential benefits of free exploration in nature. The time of replies varied widely, respondents spent approximately 15-60 minutes on answering all the questions. One respondent did not answer the second part of question 11. In the following, based on the responses to the interview questions, the results of the hypothesis tests are presented.

3.2.2. Results of pilot research

Based on the interviews, the responding teachers hold, on average, about 40% of Physical Education classes outdoors (but not in nature). Physical Education lessons in nature account, on average, for about 15% of the total number of lessons (including parks and playgrounds close to nature). The prevalence rate of free exploration activities in nature during PE classes is also at about 15%. As a result, on average, only 2 % of PE classes involve free exploration in nature. In educational institutions, free exploration accounts for an average of 30% of sporting events and camps in nature. Among the most typical programs including free exploration, Forrest Schools, class excursions, summer camps, daily sporting events, family days and sports camps are important to mention. One possible reason for the low prevalence rate could be the fact that only six out of the ten respondents were aware that free exploration in nature was an activity included to be implemented in the Physical Education Framework Curriculum published in 2012. While there were respondents who had been informed on this from their school's local curriculum, others had no information at all, but had it as part of their own educational approach.

The interviewed teachers also mentioned the difficulty of incorporating free exploration in nature into the course of education because of various organized programs, timetable constraints, distance from nature, time-consuming preliminary assessments, environmental risks, inactive or problematic behaviour of children, which may also have contributed to the low prevalence rate. The estimates provided to the questions are included in Table 1 below.

| Interviewees | Rate of outdoor PE, not in nature (relative to the total number of PE lessons - %) | Rate of PE in nature (relative to the total number of PE lessons - %) | Rate of free exploration in nature during PE in nature (relative to the total time of PE in nature - %) | Rate of free exploration in nature during extracurricular programs in nature (%) | Aweraness of free exploration in nature in the 1-4 grade 2012 PE framework curriculum |
|--------------|--|---|--|---|---|
| 1. | 20 | 0 | 0 | 25 | No |
| 2. | 65 | 45 | 30 | 10 | No |
| 3. | 50 | 0 | 0 | 50 | Yes |
| 4. | 90 | 45 | 22 | 50 | No |
| 5. | 35 | 3,5 | 66 | 15 | Yes |
| 6. | 10 | 20 | 1 | 40 | Yes |
| 7. | 50 | 1,5 | 0 | 27 | Yes |
| 8. | 60 | 12,5 | 30 | 25 | Yes |
| 9. | 12,5 | 20 | no estimate | 33 | No |
| 10. | 29 | 0 | 0 | 25 | Yes |
| Mean | 42,2 | 14,8 | 16,6 | 30 | 6 Yes (4 No) |

Table 1. Summary of the estimates provided to interview questions no. 3., 4., 7., 9.(source: author)

The interviews revealed that outdoor classes have a number of benefits on children's physical development, including immunity boosts, cardiovascular development, balance development and gait training on uneven ground, joint development by walking on grass and a sufficient oxygen supply in the open air. Larger spaces are more likely to meet children's needs for movement whereas task performance becomes differential involving more creative tools. In addition, outdoor classes can relieve stress, improve spatial orientation and are less accident-prone than indoor classes. Some educators, however, argue that there are more disadvantages to outdoor lessons than advantages. Open air, for example, can be more polluted in cities, asphalt can destroy children's joints, artificial grass tends to get too hot or hard to walk on in the rain while weather, allergens and ticks require special attention, and parental resentment often impedes implementation. In view of the above, it is important to create an accident-free outdoor environment for movement, by, for example, cutting down overhanging branches or using adequate surfaces.

PE classes conducted specifically in nature have numerous advantages including having adequate air quality, being able to move on natural ground, whereas natural landmarks can effectively help develop the sense of balance. In addition, children's ecological identity is enhanced and they get familiar with natural beings. Moreover, they inspire creativity, have a calming effect, enrich children with experiences, and improve concentration by providing countless stimuli to engage children's interest while their guided attention can rest. This is confirmed by Kaplan and Kaplan's (1989) Reshaping Theory of Attention, according to which

our natural environment helps us relax our guided attention, thus making us more focused, relaxed, and less stressful. According to Louv (2005), the lack of experience with nature can also lead to the development of mental health and emotional disorders, as well as attention deficit disorder. At the same time, PE in nature can also develop the ability to overcome fear or adapt to environmental changes, and can develop self-discipline. Orr (1993) also points to the environmental pedagogical importance of dealing with fears and feelings of discomfort related to nature. In his view, the reason for our increasingly prevalent biophobic attitude is the disconnection from our natural environment, in man-made environments there are less and less opportunities to experience nature with an increasing number of negative associations that need to be offset. According to Gill (2011), experiencing nature is important for children because it not only has a beneficial effect on their physical and mental health, emotions, motor, neural and sensory development, but also effectively increases their environmental awareness. Nature can also provide an ideal environment for the implementation of folk games and the development of orientation. It should be highlighted that 2020 PE Framework Curriculum also put an emphasis on promoting folk games and incorporating them into PE classes. However, according to some PE teachers, pure nature is not suitable for the implementation of physical education classes, as attention must be paid to the right ground, UV hazard, and other risks of injuries caused by nature. Movement in nature requires a higher level of teacher supervision, tours must also be conducted with thorough preparation.

Outdoor free exploration (unstructured outdoor play) allows for self-assembly, whereby children's creativity and imagination can develop significantly. Similarly, Hyndman (2018) also underlined the importance of outdoor physical activity in development of children's creativity. They establish and apply specific rules, and consequently, positive processes of socialization can be initiated, such as the development of group dynamics, imitation, independent differentiation, development of adaptability, ranking among each other, development of sportsmanship and the recognition of the performance of others. Herrington and Studtmann (1998) also demonstrated that in man-made traditional playgrounds, physical fitness usually determines the hierarchy between children. In contrast, when playing on natural landmarks, the ranking among children is much more determined by the level of creativity, ingenuity and verbal knowledge, thereby facilitating socialization.

In addition to engaging in play, they can have an aesthetic experience, find joy, achieve selffulfilment, gain self-knowledge while their personality develops, which can also be observed by the teacher, and they learn to cope with their failures and limitations and obtain self-control. environmental risks (e.g., effects of bad quality of air or ground) on time.

Free exploration can also be used to relieve stress and relax controlled attention through the experience of novelty and discovery (see the Reshaping Theory of Attention - Kaplan and Kaplan, 1988). Students' physical development can become more differentiated, as young children instinctively feel what forms of movement they need, and their fine motor skills, manual dexterity, and movement coordination develop accordingly. Herrington and Brussoni, (2015) found that unstructured play also has an important role in reducing childhood obesity, however, for the 5 years preceding the study, it was found that overall, children's unstructured play time had decreased. According to one of the educators, as opposed to specific tasks, the role of free movement is far greater in the development of grade 1-4 students, therefore apart from their inclusion in the compulsory PE classes, another 30-60 minutes of free movement a day should be included in the curriculum for grades 1-4. At the same time, it has also been observed that 3rd graders are already more demanding of free play and are willing to use things they have learned before, while first-graders do not yet spend their time actively on their own. It is also important to note that free exploration should be preceded by guided warm-up exercises, and the educator should prevent various disagreements, fights, and adverse effects of

As regards free exploration in nature, in addition to the positive impacts outlined above, the effects of environmental education and the development of ecological identity have been highlighted, including learning about natural values and the local environment, creating a sense of unity with nature, experiencing closeness to nature, discovering and engaging in nature and the education for the love and respect for nature (see similar findings in Csonka and Varga, 2019). It was also observed that acquiring knowledge associated with movement can be more effectively cemented, and movement outdoors can expand the knowledge and skills required not only for environmental education but also for many other subjects. In addition, it was also concluded that children coming from rural areas are smarter, more persistent, courageous, practical, and creative due to the large number of free exploration in nature they have encountered. Related findings are those of Özdirenç et al. (2005), which found that urban children in Turkey are generally more inactive than rural children. This is largely due to the fact that the latter get a higher chance to play comfortably outdoor (Özdirenç et al., 2005). Konyha (2011) also pointed out that rural children have a stronger environmental attitude than urban children in Hungary in terms of actual environmental commitment. As opposed to various coordinated tasks, free play in nature, with nature-given landmarks or with each other, seems to correspond much more to the age characteristics of the younger age group, which would

currently need more opportunities for free exploration in nature. More parks should be built to provide opportunities for children living far from nature to play with various wooden toys and games. Free exploration in nature can also lead to differential physical development, for example, the sense of balance and joint development can be enhenced more effectively. Lunchs and Fikus (2013) also demonstrated that in the case of nature-based playgrounds, children play more varied and complex games than in traditional playgrounds. In the case of the latter, children tend to spend longer periods of time queuing and waiting for each playground equipment to use, while in the case of the former the time spent in actual movement and play is considerably longer. Coe et al. (2014) also confirmed that after greening, a significantly higher proportion of children engaged in intense physical activity in playgrounds complemented by natural elements. Diversity of activity is also more prominent in the case of children on natural landmarks (Herrington and Brussoni, 2015), and more diverse and need

based forms of movement can develop. A tree, for instance, can be climbed, balanced, jumped, etc. in a variety of ways, while a traditional playground equipment, such as a slide, has a specific purpose. According to Herrington and Brussoni (2015) the "secret ingredient" for children's health and development is nature and play, which is no substitute for anything else. However, particular attention should also be paid to the risks described above regarding free exploration in nature.

4. Conclusion

The most important conclusion to be drawn from the examination of the Curricula is that changes to the implementation of free exploration in nature within the educational framework should be monitored in future studies, as this educational element is no longer included in the relevant grade 1-4 Framework Curricula. It can help achieve the goals of the Curriculum, educators, however, are not required to use it. Nevertheless, the results of the pilot research also suggest that the prevalence of free exploration in nature in PE classes is already negligible due to the reasons described in the previous chapter. As far as Physical Education events and camps out of PE classes are concerned, free exploration in nature seems much more common. Based on the changes to the Curriculum and previous practice, it would be worthwhile to allow more time for free exploration in nature during school events out of PE classes as it neither seems to have been difficult to involve in them, nor it is a compulsory element of the Curriculum as regards PE classes any more. This is not to say that the adequate application of free exploration in nature within PE classes would not bring benefits. Daycare, class excursions, summer camps,

Forest Schools, sports camps, study trips should, however, come to the fore, which could allow educators to organize programs in nature with less restrictions and a fairly long time frame. It is important to make better use of these precious opportunities, leaving enough time for children to move around freely in nature, raising a healthier, more resilient, creative and environmentally conscious generation which is capable of facing the ecological crisis of our time.

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About Author

Sándor Csonka is an expert in Applied Environmental Studies and Human Ecology. He received his BSc and MSc from Eötvös Loránd University in 2015 and 2018. He is a PhD student in the Doctoral School of Education of Eszterházy Károly University. As a student of the Environmental Pedagogy Module, he conducts research mainly in the field of free exploration in nature, development of environmental attitude scales and light pollution.

Appendix

Pilot research interview questions:

1. Please provide the name of the primary school you teach PE at.

2. Is the institution a certified sports school? Where is the institution located?

3. What is the approximate percentage of lessons a school year that involve education outdoors but not in nature (e.g., on outdoor sports fields)?

4. What is the approximate percentage of lessons a school year that involve education in nature?

5. What programs are tipically implemented in nature as part of Physical Education classes?

6. Is it common in your institution that a program is implemented in nature under teacher supervision with children engaging in self-directed free play or physical movement, free to choose the way they spend their time?

7. What is the approximate percentage of free programs and controlled activities, such as tasks, specific sports games, competitions, etc., during PE classes which take place in nature?

8. Does the school usually organize extracurricular sports events and camps in nature? Please provide an example of these.

9. Please give an estimate to the percentage of the prevalence of free exploration in nature within the above mentioned extracurricular programs besides organized activities (separately within each mentioned program).

10. What, in your view, are the benefits of having PE classes outdoors but not in nature? What could be the benefits of Physical Education in nature?

11. What, in your view, are the benefits of free play outdoors but not in nature and those of outdoor play in nature?

12. Were you aware that the free movement in nature element is part of the PE Framework Curriculum for grades 1-4 related to the 2012 Hungarian National Core Curriculum?