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# Investigation of a Museum Education Workshop of Széchenyi Zsigmond Hungarian Hunting Museum of Carpathian Basin, with a Focus on Education for Environmental Awareness

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***Abstract:*** *More and more museums are offering environmental education programmes, and museum education activities are providing more and more learning and experiences for people of all ages. This study aims to find common ground between promoting sustainability and museum education activities. We investigate the role of museums in the development of environmentally aware attitudes in the framework of a doctoral research. One of our research sites is the Széchenyi Zsigmond Hungarian Hunting Museum of the Carpathian Basin. As part of the research, primary school students participated in museum education workshops. The aim of the surveys conducted at the Hunting Museum of Hatvan was to develop the natural science skills of the third to sixth grade pupils participating in the programmes by providing them with the broadest possible scientific basis and to increase their knowledge of our living and non-living natural resources. We observed the effects of environmental education about the museum workshops, documented changes in students' knowledge and tested their short- and long-term memory (179-172-163 students participated). In the second survey, the students achieved better results in terms of changes in knowledge than in the first questionnaire (our hypothesis was confirmed). The results of the third survey exceeded the results of the second survey in most cases (except one question) (the hypothesis was partially confirmed or overturned).*

***Keywords:*** *environmental education; museum; museum education; environmental awareness; efficiency evaluation*

## 1. Introduction

Today, training for sustainability plays an increasingly important role. In sustainable development education (museum education) projects, training for environmental awareness can be made even more effective by the means and methods of forest pedagogy. For the theoretical

substantiation of this study, we examine the relationship between museum pedagogy and environmentally aware education in a non-exhaustive manner.

### *1.1. The concept of museum and museum pedagogy*

According to Act CXL of 1997 on the Protection of Cultural Property and Museums, Public Libraries and Public Culture, *"The museum is responsible for the permanent collection, recording, preservation and restoration, scientific processing and publication, as well as exhibition and other forms of presentation of specific material of cultural property."* (Act CXL of 1997).

Museums enrich us with informal knowledge and valuable experience obtained in a voluntary environment (Lord, 2007). In addition to exhibitions, museums can enhance their programmes with tools, activities and activities that can contribute to shaping the museum visitor's perception of nature and the environment (Dominek, 2021). Museum programmes are catching up with the needs of the current generation, and museum pedagogy sessions are becoming increasingly popular among educational institutions. In Western Europe and the United States, they have long been used in school education. From a pedagogical point of view, museum pedagogy has its roots in the Enlightenment and the reformist educational trends of the early 20th Century. John Dewey and Jean Piaget played a major role in its development (Tanóczky, 2019).

Nowadays, museum education is both an educational and a pedagogical activity, while taking into account the specificities of each age group, since a museum educator's responsibilities include dealing with the broadest generations of visitors. Exhibitions can be sequences of several sessions and multiple visits, providing a greater immersion in the subject than a single experience (Foghtűy, 1993).

### *1.2. Understanding environmental education, education for sustainable development and forest pedagogy*

The concept and content of environmental education is very complex. It can be understood as the transmission of environmental culture, which includes awareness of the living and non-living environment. Environmental education should prepare people to deal with environmental problems and conflicts, to take action to improve the environment, and to point out the harmonious relationship between man and nature (Lehoczky, 1999). Environmental education involves an integrated approach to various disciplines (Lükő, 2003). Environmental education is characterised by thinking in terms of systems (Kováts-Németh, 2010).

In the process of education for sustainable development, we establish links between the three components of sustainability: we need to examine the interrelationships between the environment, the economy and society in a holistic way (Havas, 2001; Havas-Varga, 2006). One of the key issues of education for sustainability is to develop a sense of responsibility towards the environment (Mónus, 2020). One of the objectives of education for sustainable development is to enable participants/students to develop their own vision of sustainability (Varga, 2020).

The forest pedagogical project is inherently complex in its thematic scope, contains adapted knowledge and is practice oriented (Kovátsné Németh, 1998). The significance of the project method is outstanding due to its multidisciplinary nature, it provides the opportunity to develop environmentally conscious behaviour. It links different disciplines into a single unit.

## 2. The emergence of environmental education and forest pedagogy in museums

The emergence of environmental education and forest pedagogy in museums

Nowadays, museums, zoos and botanical gardens have become prominent areas of environmental education in Hungary (Halászné Szakács, 2017; Fodor, 2015).

It is an important step for museums, which opens up a wide range of opportunities for museum educators. A work of art can also serve an educational function, and an entire exhibition even more so. Exploiting this, the themes of an exhibition can be designed to include environmental education (Csákiné Dobos, 2020). Museums can become privileged actors in environmental education since one of their fundamental missions is to create a link between science, heritage and society.

Several international 'best practices' demonstrate the link between environmental education and museums: in France, a new type of museum has been developed that puts the relationship between humankind and its environment at the centre of its programme: the ecomuseum (Waidacher, 2011), and over several decades, a number of Anglo-Saxon exhibitions have started to focus on the impact of humanity on the environment (Zwang, Girault, 2019).

In 2012, Elekes, in the context of writing her doctoral dissertation, investigated whether functional knowledge that leads to the protection of nature can be developed in children through planned education in museum pedagogy. Her research confirmed that through conscious education, children can develop the mental structure necessary to deal with environmental problems (Elekes, 2012).

Forest pedagogical methods can also be excellently integrated into museums. The emphasis is on learning through experience and on individual or group activities. We give priority to exploratory, investigative work. In museum sessions, pupils learn about the exhibitions and through them, about living and non-living natural assets. Educational institutions may not have the opportunity (due to lack of time or money) to participate in forest school sessions, but they certainly need environmental education or forest pedagogy sessions. In such cases, museums can provide students with authentic, interesting and relevant natural and environmental knowledge and provide a basis for sensitization by introducing new things (Csákiné Dobos, 2020). There is also a strong emphasis on visual demonstrations, which students can experiment with themselves. These illustrative experiments are a great way to promote cause and effect relationships in nature. These physical experiments are also safe to use.

The success of the interdisciplinary projects tested between 2018 and 2019 in a small municipality, in the Museum of Pásztó, is illustrated in *Table 1.*

*1. Table 1.* Number of museum education sessions and their participants at the Museum of Pásztó (2018-2019)

| | **Number of museum education sessions** | **Number of participants in museum education sessions** |
|---|---|---|
| **Museum education sessions without environmental education** | 16 | 259 |
| **Sessions with only environmental education purposes** | 49 | 1179 |
| **Museum education sessions with environmental education elements** | 172 | 3442 |

## 3. Research Objective and Method

We aim to investigate the role of museums in the development of environmentally conscious behaviour in a doctoral research project. The aim of the doctoral research, based on previous research and experience, is to analyse the efficiency of museums in Hungary in the field of environmental education. The aim is to develop the environmental awareness skills of third, fourth, fifth and sixth grade students participating in museum workshops by providing them with the broadest possible scientific basis and increasing their knowledge of our living and non-living natural resources. In the context of museum workshops, we monitor the impact of

environmental education, document changes in students' knowledge and assess short- and long-term memory ("efficiency evaluation").

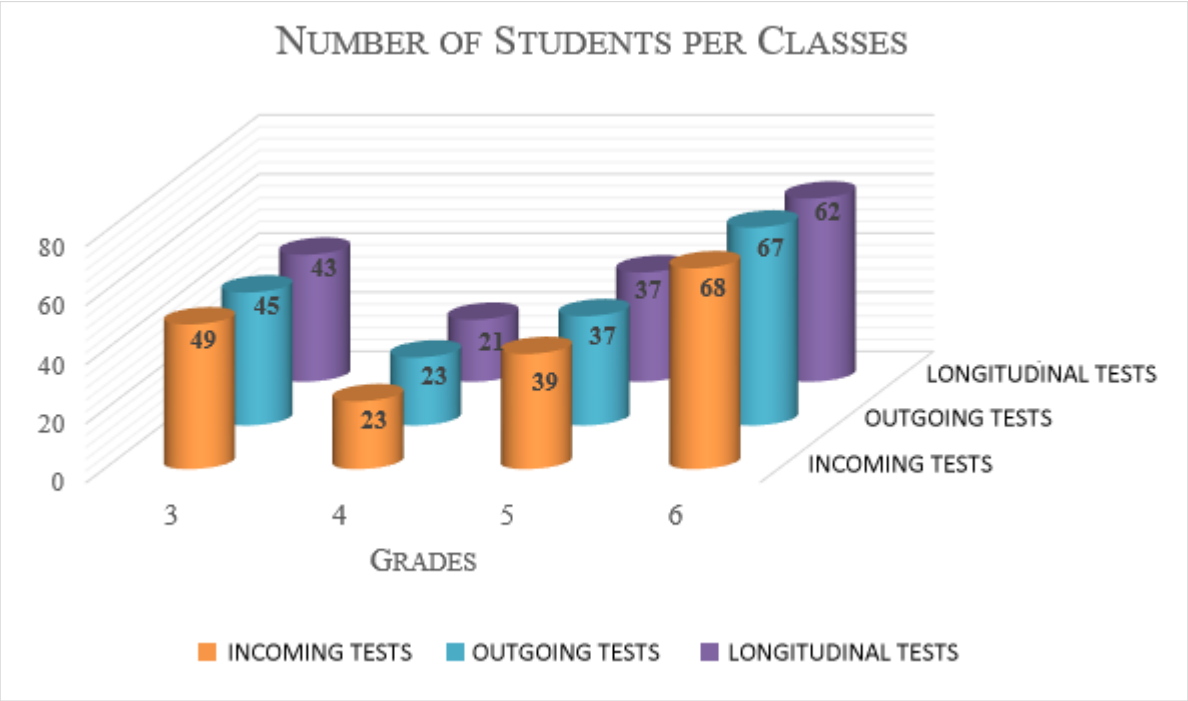
One of the sites of the surveys was the Széchenyi Zsigmond Hungarian Hunting Museum of Carpathian Basin in Hatvan, which is part of the "One with Nature" World Exhibition of Hunting and Nature. In the present study, we analyse the results of this survey. As part of the research, museum education workshops were held for primary school students. In addition to the museum educational workshop, a hunting dog show was presented by members of the Heves County Institute of Kynology of the National Hungarian Hunting Chamber. We planned to have 179 students participate in the longitudinal study, which was intended to last for 1 year. An empirical measurement tool (questionnaire + test) was designed to assess the students' opinions and changes in their knowledge, linked to the session "Aladár Dandelion and his friends". The test questions used in the pre- and post-tests differed only in their sequence, in order to ensure equivalence. We expected a significant difference between the first and second measurements in the case of the museum education workshop, i.e. we assumed that there would be a detectable improvement in students' performance following the workshop. One year after the experiment, we repeated the surveys, expecting a deterioration in long-term memory performance.

In addition to the written questionnaires, in the course of self-monitoring pedagogical experiments, we monitored the changes in students' knowledge level (knowledge level measurement) (longitudinal study) (Falus-Ollé, 2000). The results were evaluated using descriptive statistical methods.

## 4. Research Outcomes

The first two samples were collected from September to October 2021 using paper-based data collection. A total of 179 primary school pupils in grades 3 (N=49), 4 (N=23), 5 (N=39) and 6 (N=68) completed a questionnaire and a test before the workshop. After the session, a total of 172 tests were returned to us by students in grades 3 (N=45), 4 (N=23), 5 (N=37) and 6 (N=67) from the same classes after the workshop. The last part of the efficiency evaluation was conducted in September 2022, one year after the museum education workshop, in the same population. This test was completed by 163 students in grade 3 (4) (N=43), grade 4 (5) (N=21), grade 5 (6) (N=37) and grade 6 (7) (N=6) *(Figure 1)*.



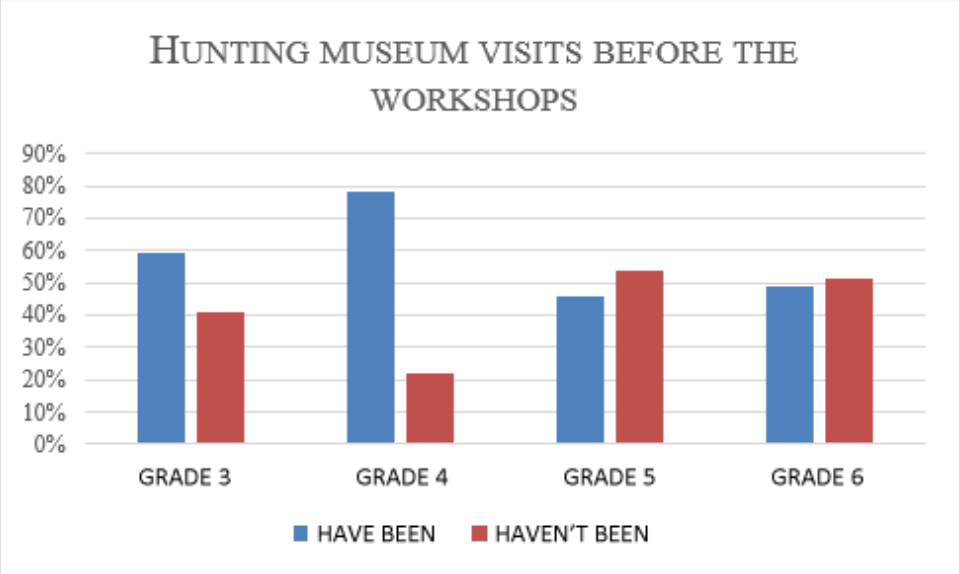

1. *Figure 1.* Distribution of the number of students per classes

Respective edit, 2023

The current evaluation assesses one multiple-choice test item, 4 multiple-choice items, one matching item and one answer construction item. Using the written questionnaire method, in addition to the opinion questionnaires, self-controlled pedagogical experiments were used to measure knowledge levels and to monitor changes in students' knowledge levels (longitudinal study). Our study aimed was to explore the traces left by the workshop and to measure the long-term effects on the students. We hypothesised that there would be a deterioration in the efficiency of recall. However, we were pleased to see that instead of deteriorating, the longitudinal study produced better results than the second survey conducted immediately after the session.

Our first questions were directed towards the knowledge acquisition opportunities regarding the animals, tools and concepts presented in the session. The answer to the question " Have you ever been to a hunting museum" shows that the majority (98 people) of the respondents (179 people) had already visited a hunting museum, while 45% (81 people) had not *(Figure 2).*




2. *Figure 2.* Distribution of the answers given to the question *„Have you ever been to a hunting museum?"*

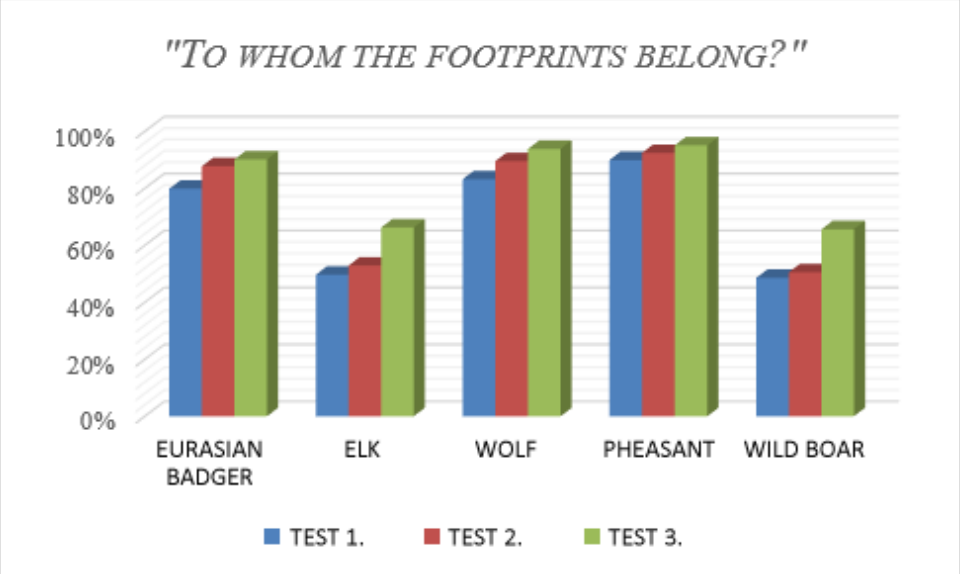
Respective edit, 2023

In the following, we examine the results of the answers given to the questions regarding the effectiveness of knowledge acquisition from the completed tests before, after and one year after the workshop.

The first task was ***"Group Hungarian dog breeds according to their activities."*** Before the sessions, an average of 76% (135 participants) knew that the "puli", "mudi" and "komondor" belonged to the herding dogs, while the Transylvanian "kopó" and the Hungarian short-haired "vizsla" belonged to the hunting dogs. After the workshops, the average number of correct answers was 80% (137 people) and 1 year later 81% (132 people) were correct.

Regarding the pairing task ***"To whom do the footprints belong?"***, the longitudinal survey had the highest number of correct answers overall, and more correct answers were obtained in the second round than in the first one. One year after the session, on average 82% (134) of the children associated the footprints with the corresponding animal species correctly, while on average 70% (125) did so the first time and 75% (129) the second time. The distribution of correct answers by species regarding the three different testing sessions is clearly shown in *Figure 3.*




3. *Figure 3* Distribution of correct answers to the question *"To whom do the footprints belong?"*

Respective edit, 2023

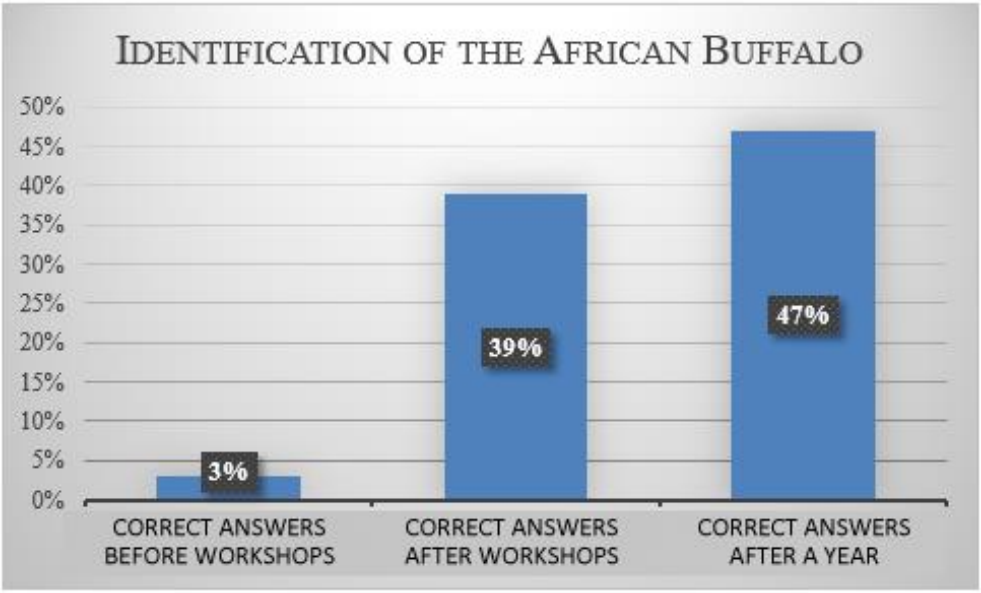
We were eager to get the children's full attention, so we asked them to "***Mark one of the great figures of our Hungarian hunting culture below!"*** Before the session, 125 (70%) pupils identified Zsigmond Széchenyi out of 5 possible names, while after the session 72% of the pupils knew the correct answer, and after a year the recollection dropped and only 106 (65%) answered correctly.

For our question ***"Which of these is not used in falconry?"*** 43 students (24%) picked the correct answer (whistle) before the workshop. In the post-test, there were 52 (30%), and after one year, there were 81 (50% of respondents) correct answers.

In the ***"Identify our daytime birds of prey"*** exercise, 33 (18%) identified the daytime birds of prey from the list ("sparrow hawk", "hawk" and "buzzard") at the first attempt, 104 (60%) at the second attempt and 130 (80%) at the third attempt.

In response to our question ***"Which of these species lives only in Africa?"***, only 6 respondents (3%) were able to identify the correct species out of the five listed, while 67 (39%) were able to correctly mark the species of the African buffalo in the second test, and 76 children (47%) did the same in the long term memory questionnaire *(Figure 4)*.




4. *Figure 4* Correct identification of the African buffalo

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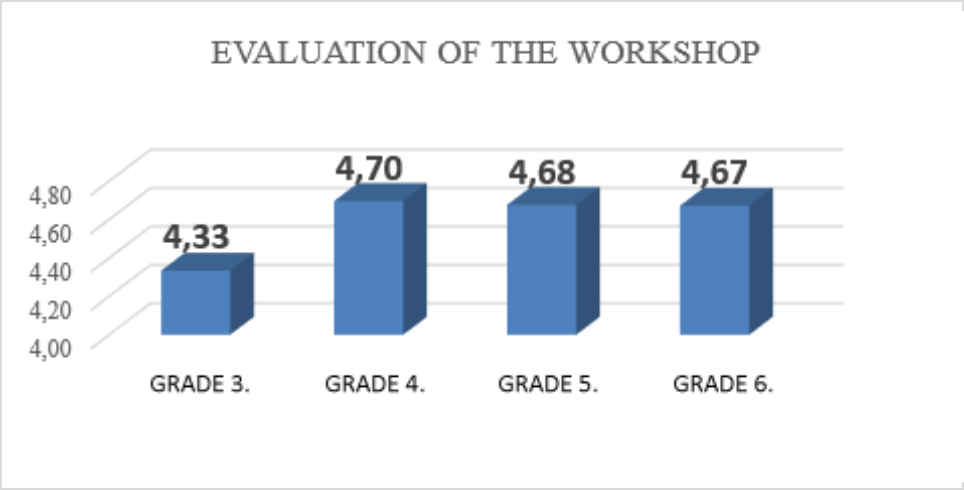
We also asked the question ***"Do you know of any printed media products (newspapers, magazines) with a hunting-related theme? What is the title?"*** Not surprisingly, there were only 10 correct answers out of 179 submitted for the first time, but following the workshop, 96 children named the correct press products for our question, accounting for 56% of the total number of completed tests. However, we were surprised to find that after a year, 107 out of 163 students (66%) could name a newspaper or magazine with a hunting elated topic.

For the second test, we asked them to rate the session they had attended to give us some feedback on their perception of this optional programme *(Figure 5)*.




5. *Figure 5.* Evaluation by the pupils attending the workshop

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## 5. Summary, Conclusion

We need to find the common links in the complex system of environmental education (education for sustainable development), museum education and forest education. Through action-oriented methods, conscious planning, experiential programmes and authentic models, we can lay the foundations for an environmentally aware approach and contribute to the development of attitudes that are understanding and sensitive to sustainability. We need well-trained professionals, well-developed and secure resources, a support system, appropriate and useful information, events, joint reflection, workshops and conferences (Csákiné Dobos, 2018). The scope of awareness-raising cannot be limited to educational institutions but must also extend to children's everyday lives. This is particularly important today-when human lifestyles are becoming increasingly distant and alienated from nature. Environmental education is essential to make future generations aware that mankind is inseparable from nature. We must endeavour to educate the next generation so that, with the inevitable and necessary acceleration of technological progress, they have the vision and the heart to halt the irresponsible destruction of nature. With perseverance, and with the cooperation of national parks, forestry, various associations, and educational and cultural institutions, we can keep environmental education alive.

In our doctoral research, we examine the role of thematic museums of natural history in environmental education. We assess the changes in the knowledge of students participating in museum education workshops in both the short and long term. Before the surveys related to the "Aladár Dandelion and his Friends" presentation in the Zsigmond Széchenyi Hungarian Hunting Museum of the Carpathian Basin, we assumed that the post-tests following the learning sessions would show a much better result than the pre-tests. Following the study, we repeated the surveys after one year, where we expected to see a deterioration in long-term memory performance. Overall, the analysis of the results suggests that our first hypothesis, in which we assumed that students would perform better in terms of change in knowledge at the second interview, was confirmed. However, the results of the longitudinal study only partially confirmed our second hypothesis, and based on the proportion of results obtained, we can even say that it was disproved, since generally speaking, the effectiveness of remembering did not deteriorate, but the knowledge acquired deepened, and the results of the third survey exceeded those of the second survey in most cases (except for one question).

The development of students' knowledge is the first step in the process of environmental education/ training for sustainable development, as one of the necessary conditions in the

 

process of environmental education is the development of environmental/natural knowledge, which later induces a change in attitudes and, in the long term, environmentally conscious behaviour. The long-term retention of the knowledge acquired during the session is presumably linked to the successful stimulation of interest in the subject, which encouraged the students to acquire further knowledge on hunting topics (as evidenced, for example, by the surprising increase in knowledge of hunting magazines). Although no attitude survey was carried out, we assume that the positive results suggest a change in attitude towards the topics learned during the experiential session.

In our opinion, the results of the survey conducted at the site in Hatvan (in the National Hunting Museum) prove that museum pedagogy sessions have a positive effect on the expansion of students' knowledge.

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**Short professional CVs**

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