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Modern School Geography and Inquiry Education

Abstract

School geography is a subject which has more possibilities to modernize the teaching than other subjects. It is thanks to the interdisciplinary and cross-disciplinary character of the geography science in general. Modern geography could benefit mainly from the cross-curricular links. At the same time it applies modern, but concurrently established and verified concepts as for example inquiry-based education, philosophy for children, global development education or the use of mobile applications et al. The inquiry-based education (IBE) methods deepen pupils' interest with exploration, they develop their critical thinking and teach them to orientate within the information smog, and they make school and teaching closer to real life. Presented case study is an example of use of the IBE teaching activity at the border geography and biology. The direct and real contact of pupils with the observed animals indicates that this kind of education awakes pupils' interest in living nature. The teaching activity motivated the pupils to develop affection for animals and to get to know their zoogeographic area of habitat. At the same time, the activity is a perfect example of the so-called "inadvertent learning" (Petty, 2013).

Key words geography teaching, biology teaching, cross curricular links, inquiry education, teaching activity

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Introduction

In the last couple of years, the world around us has been changing at relentless pace. Young people are more and more often faced with a need to make decisions which have an increasing impact not only on themselves, but also on their environment or even the whole world. Education should primarily teach not only the capability to follow new trends and worldwide changes, but also the capability of orientating

within them, understanding them and knowing how to logically connect them, as well as the acquisition of new skills and timely reassessment of one's attitudes or reaction to changes.

In the current Czech geographic education, the structural approach (the teaching of geography according to the landscape subspheres) and frontal teaching based on memorising basic facts and information, still prevail. However, today's world is already completely different. Due to the influence of modern technologies and the internet, it is not possible today to grasp and teach pupils all the facts and information from a given theme. It is imperative to teach pupils how to think, how to search for the least biased information possible, and how to verify that information. As presented for instance by Miléřová (2015), it is necessary nowadays to teach pupils to open their minds to a wider world and to prepare them for crucial changes in the future. Classes should be devoted to a critical analysis (see also Bauman, 2013; Jonák, 2004) and understanding of everyday local or world events in the sense of "Geography in the news" (GA 2014), and thus teach pupils to examine events, global topics and information from different points of view and to think about their nature and function in greater depth.

We consider the methodic procedures and new pedagogic approaches as inquiry-based education, philosophy for children, global development education or the use of mobile applications et al. convenient and modern, but at the same time, the established and verified concepts, which, if correctly used in teaching practice, are capable of raising the quality level of geography teaching in Czech schools, and of making it an attractive teaching subject for pupils, which to a large extent contributes to understanding of the current world and events therein.

The presented paper introduces the application of one of the mentioned innovative methods and forms of inquiry-based education (IBE). The aim was to prepare inquiry teaching activities for pupils at the 2nd stage of primary school and at the lower stage of the eight-year secondary school. At the same time, it was crucial to verify and monitor whether the children were able to implement the teaching activity. This is a case study of inquiry-based learning of biogeography, which stems from on the use of interdisciplinarity between geography and natural science. Pupils' activity is focused on watching birds and on inquiry. They try to figure out the ways birds use to find food in different biogeographic areas around the world. The main research hypothesis of the authors was based on the practical results of the use of the methodology of inquiry-based learning in real teaching practice, published e.g. by Hammerman (2006), Perkins (2007) and Stephenson (2008) etc. In this sense, it was being verified, whether the IBE helps pupils in solving problems and if it helps with the development of critical thinking and expressive and communicative skills. An important factor was also the intention to verify, whether pupils' real experiences and feelings gained from their direct contact with animals and stuffed animals influenced their motivation and interest in learning.

Inquiry in the Teaching: Literature Discussion

The change in education policy in the Czech Republic at the beginning of the 21st century has brought some changes to geography education, mainly the change of

goals and content of the education itself, especially through building up and developing the key competencies of learners, focusing on situations that are close to learners' lives that are practical. Due to this change, the conception of Inquiry-Based Education started to be promoted. The methodology concept of IBE (or Inquiry-Based Science Education – IBSE, Inquiry-Based Learning – IBL) does not differ from the other innovative methods in the basic goal, which is making the learning process more attractive for learners and to activate them.

What makes this method different is that for making the learning process more attractive, it simulates real scientific research and applies scientific methods adjusted to the age of learners. A clearly defined request for a research approach in learning was stated in the National Standards for Natural Sciences Education in the USA in 1996 (Stuchlíková 2010: 150). In Europe, the European Commission and its experts became the initiators and promoters of the new learning methods in the sense of the motto "Europe needs more scientists?" in order to support children's interest in natural sciences and the spread of inquiry-based education (EC, 2004; Rochard et al., 2007; Osborne, Dillon, 2008). In connection with the development of IBE the specialized didactics came into focus (Janík, Stuchlíková, 2010). On the other hand, the paradigm of interdisciplinarity and multidisciplinarity of natural sciences education is emphasised (Papáček, 2010: 38).

IBE according to Karvánková et al. (2017) inspires learners' interests not only in geography, biology or other natural sciences, but it also inspires interest in their surroundings, nature and the landscape they live in. During realization of IBE, the learners acquire a new attitude and they develop their practical skills and competencies to apply the theoretical pieces of knowledge to real life. IBE makes the work of learners in the real world ("in situ") and real time ("in time") possible. Usage of research approaches simulating real scientific work and the right choice of subject matter leads to effective understanding and potentially makes natural sciences more attractive to learners (Janoušková et al., 2008; Papáček, 2010, Stuchlíková, 2010).

IBE, in its many forms as introduced by teachers, is also connected to using modern scientific approaches, independent identification of environmental problems, working with data and literature and development of communication skills of learners, etc. These are the competencies that Czech students lack according to PISA research (Czesaná et al., 2009; Bičík, 2009).

Dougles, Brown (2011), for example, understands and compares IBE to a game. The main goal of the whole game according to Dougles, Brown (2011) is the creative tension among the rules, in other words, among what the pupils know and do not know. To be able to play every game to its end, one must play according to its rules. That is why inquiry must have clear structure and boundaries to be taken as successful for the learners. Brown has a theory that unlike traditional methods that focused only on learning existential knowledge, the process of inquiry is absolutely opened to the unknown. The area of the unknown symbolizes the possibility of creation, interpretation and participation in the whole game for the learners. Perkins (2008) just like Dougles, Brown (2011) sees the IBE as "playing a whole game".

Perkins (2008) claims that teachers have two ways of carrying the educational process. The first method used is to divide pieces of information from a given

topic to blocks, that allow to build up more complex thoughts. The meaning of this method lies in complete separation of skills from learning. Learners perceive the subject matter as a unit cut into pieces and that can lead to troubles with ability to understand the deeper connections. In the second method, the teachers concentrate on explaining the given topic to learners. The learners only use thoughts of other people and don't have much space for their own ideas. According to Perkins (2008), teachers mistake the critical thinking and creativity of learners in the educational process for difficult knowledge that learners must get without developing any skills and connections. The solution according to Perkins (2008) lies in the change of scheme and structure of learning process. He claims that learners should learn the units that will help them to better understanding of certain connections. He compares his theory to a baseball match: learners try to learn only isolated practical skills such as throwing a ball, or theoretical knowledge of the game without ever visiting a real game. This metaphor describes isolated pieces of knowledge that learners get without connections and the experience of the "whole game".

Stephenson (2007) highlights the inquiry-based learning in that he believes inquiry should be a vision which is brought to pupils by their teacher. Pupils should understand the subject matter as a suitable topic that they can think about, discuss or use in research. Stephenson (2007) understands inquiry as a complex of interconnected thought constructions, and believes that in the process of building, both the teacher and the pupil are involved in learning. Contrary to Perkins (2008), Stephenson (2007) says that inquiry-based learning contributes to the increase of intellectual involvement and enhancing pupils' own experiences in practice, but it should not be included among teaching methods.

In contrast, Rychnovský (2010) considers inquiry-based learning as one of the methods of problem-based learning. This idea is shared by Papáček (2010), who states that the teacher should convey theoretical knowledge to pupils by way of solving the problem by working with questions which have a research character. Papáček (2010) characterizes this method as formulation of hypotheses from the results of the search to solutions to their interpretation, where a set of hypotheses are referred to as a set of custom questions leading to the knowledge of the investigation. According to Rychnovský (2010) as well as Perkins (2008), inquiry-based learning is based on the deepening of critical thinking in pupils. Furthermore, Rychnovský (2010) argues that inquiry is an ideal method for overly-talented pupils. On the other hand, according to Stuchlíková (2010), the main principle of inquiry-based learning lies in the process of formulating the problem, which is considered a purposeful, educational process. She also says that pupils should work with the assessment of alternatives from which they should draw conclusions and continue to experiment and compare them with the other information. Based on these facts, pupils formulate their own specific arguments.

As well as Perkins (2008) and Rychnovský (2010), E. Hammerman (2006) sees the main importance of inquiry-based learning in support of critical thinking of pupils. Furthermore, Hammerman (2006) considers research as a process that promotes logical thinking of pupils and their use of intellectual skills. In contrast to the others, in his book he describes eight principles of research in natural science, which are explained in detail. The first and the second principles are explained as

the development of understanding the main ideas and the development of procedural and thinking skills. The third principle is the active involvement of pupils in the learning process. The fourth principle deals with the understanding of the ways in which science, technology and society are combined. The fifth principle provides the experience that is needed for support and development of interpretations of the world. The sixth principle aims to improve pupils' writing and reading skills. The seventh allows teachers to have a variety of strategies in the educational process, and the last principle is based on the fact that pupils have a variety of ways how to show what they know and what they are able to do. Even before the formulation of Hammerman's principles of inquiry in natural science (2006), Fisher (1997) created a schematic diagram of what is needed to ensure that the child consolidates its subject matter. Fisher (1997) sees the main problem of pupils as the inability to formulate questions on a given topic of interest. This is mainly because they are overwhelmed by questions that have no function so they do not distinguish their meaning.

The importance of inquiry-based learning and its use in teaching practice is constantly increasing. This is evidenced by a number of international conferences or projects devoted to inquiry education. For example, the international conference of York „Taking IBSE into Secondary Education" (October 27–29 2010) has brought, as Mc Crory states (2011), a more general and complex view of inquiry-based learning. Conclusions from the conference define inquiry-based learning in the natural sciences as the process and outcome of learning about the world around us. It also provided views that pupils should learn through their own physical and mental activities. Based on their own experience and ideas, the pupils better understand subject matter. For example, Annenberg Learner (2014) is an organization that puts the importance of inquiry-based learning on the questions and curiosities of pupils interested in managing their own teaching plan. This characteristic differs from those of others especially in its form of collection of information. This organization supports pupils' curiosity and believes that pupils should manage their own teaching plan themselves. The collection of information for research that the pupils should try on their own is done through the senses (hearing, touch, taste, smell, sight).

Unlike everyone else, Nezvalová et al. (2010) looks at inquiry-based learning from three perspectives, which she interprets as part of the project "Improving the Quality of Education of Natural Science Teachers". The first view concerns the IBE and its relationship to the educational process. It is a process in which the pupils acquire inquiry skills that are used to explore nature. As a part of this inquiry process, the pupils will understand the meaning of asking questions and further formation, clarifying and explaining a single piece of evidence. The second view deals with inquiry-based learning and its relation to the pupil's activity or learning. For pupils, inquiry is an active process during which they build their own knowledge based on their own understanding and exploration of nature. An important role is played by previous experience and knowledge, which can be later replenished. The last view on IBE deals with the relation to teaching from the point of view of the teacher's activity, and these are the forms of teaching that the pupils form on their own and the teacher only checks and accompanies them.

Case Study of Inquiry Teaching of Biogeography: Teaching Practice and Research Remarks

The suggestion of teaching activity is elaborated and based on the use of IBE methods in teaching geography and biology. Its content focuses on the knowledge of selected bird species and their geographical environment in which they live. On the basis of practical skills, pupils will understand the originality and imagination with which the birds have managed to obtain food in various biogeographical areas of the world which resulted in adaptation of their lives to the natural conditions. The activity "Know a blackbird by his nose" was prepared in the SMART notebook programme on 25 slides and contains 11 interactive tasks that can be used completely as well as individually. There are examples prepared of stuffer birds, bird´s feathers and birds eggs for pupils´ better understanding. Some questions and tasks of lecturer and pupils make part of the activity (Table 1).

The teaching activity is divided into three parts. The introduction serves the purpose of attracting children's attention to the subject and of their understanding some basic bird world context, while also having the intended function of activating and motivating the children. This part includes an interactive task involving the classification of animals into biogeographic areas of the world. The second part is made up of pupils' own activity. It is a practical part and it is absolutely in their hands. This section is set up in a way, that makes pupils research, observe and contemplate on their own. The first task is called "Klofni si – Pick it up!!" Groups of pupils receive tools, which represent individual kinds of beaks via their respective functions, and objects, which symbolize types of food. Each group of pupils tries grabbing individual types of good with all the tools. Then, by practically trying out themselves, pupils determine, which tool allowed the easiest manipulation of each kind of food. After that, they describe the shape and function of the individual beaks, which are imitated by using the tools. The very same thing is done to the received objects, with which they can guess the probable nutriment of some birds. The second task is named „Know a blackbird by his nose" It follows the pupil's determination of which beak best serves grabbing a certain kind of food. Pupils receive twelve bird photos. Individual photos are to be assigned to their beak-shaped instruments, representing beaks, and then pupils identify the food they feed upon.

The third part functions as a repetition in which pupils summarize all the information, knowledge and skills gained during the activity. This form of revision was chosen to be more entertaining than professional. It was created as a game in the SMART notebook programme using the interactive whiteboard. The last part of the activity is supposed to cement the knowledge. It is represented by a homework worksheet which should verify the amount of information the pupils managed to memorize. This worksheet also has a motivational function, encouraging children to further research the topic on their own by being asked questions, to which they do not know the answers. This evokes the need for using professional literature or some online sources.

Table 1 Teaching activity suggestion using methodological procedures of inquiry based learning of biogeography

NAME OF THE LEARNING ACTIVITY: „Know a blackbird by his nose"

Summary:

The learning programme helps learners to discover lives of a very broad group of animals from the whole world that were able to acclimate to natural conditions. The learners get to know how birds adapted to life in the air and how they became a cosmopolitan species thanks to their flying adaptations. We will show then what covers the bodies of the birds and what their bodies consist of. According to their practical knowledge, the learners will be able to deduce the atypical originality which helped the birds to be able to find food in different biogeographical areas of the world.

Target group

The learning programme is primarily prepared for lower secondary school learners and the lower grammar schools' cycles. In the Framework Educational Programme for Basic Education, the educational area of "Animal biology" takes place in 8th grade in the educational field "Natural sciences", but it can also be used and adapted to lower or higher grades. The programme can be realised as a part of the educational area "A natural image of the Earth" (the system of natural phenomena on planetary or regional level) or the educational area "The Natural Environment" (relationship between nature and society), both belonging to the educational field "Geography". The programme can be also used for high school students as material for refreshing their knowledge.

Time demands

The whole activity should take 45 minutes.

Space demands

The programme can be realised in any classroom that has an interactive board, projector, computer and material needed.

Acquired skills and knowledge:

Learners can classify birds in the biological system; deduce flight adaptations of birds; know the structure of feathers; know the types of feathers and their variability; describe the structure of birds' skeletons; decide which bones the birds have in contrast with other animals; realise the variability of beaks in context of biogeographical range and ways of getting and processing types of food; recognise the relationship between beaks and type of food according to pictures.

Framework Educational Programme for Basic Education connections

Subject matter in the Framework Educational Programme for Basic Education:

Natural Sciences: Animal Biology (the basic structure of feathers, structure of a birds' egg, shape and function of beaks in connection to food, flight adaptations)

Geography: Geographical range of birds, adaptation of shape and function of beaks to type of food.

Subject matter in the Framework Educational Programme for Grammar Schools

Biology: Animal Biology (the basic structure of feathers, detailed microstructure of feathers, types of feathers, structure of a birds' egg, shape and colour of birds' egg, shape and function of beaks in connection to food, flight adaptations)

Geography: Geographical range of birds, adaptation of shape and function of beaks to type of food, colour and shape of birds' eggs according to range of birds in different natural conditions.

M**aterial and equipment**
– stuffed birds (cormorant, heron, pelican, stork, flamingo, duck, grouse)
– birds' feathers (cassowary, owl, peacock, parrot, flamingo)
– bird of prey's wing, skeleton of birds' head, birds' egg (emu, stork, owl, quail)
– 4 x 12 laminated photos of birds
– 4 trays, bowl with water, sliced carrot, sieve, small tweezer, large tweezer, apple with seeds stick in it (symbolizing worms), splitter, wrench, roll, nuts, drinking straw, narrow tube-like jar with juice, millet and seeds
– working sheets, paper, stationery

I**NQUIRY TASKS:**
1) Why do some birds have white eggs and the others coloured eggs?
Learners are shown a picture of a tawny owl with its white eggs and a picture of an auk with its oval-shaped eggs. They are supposed to think why these species have eggs like this. The following discussion leads to the conclusion that owls keep their eggs in a tree and therefore eggs can be large and white. Birds of prey cannot see them as they are hidden from plain sight in the tree. Generally speaking, white eggs are laid by those birds that hide their eggs on safe places, those that can protect their eggs by their own bodies (ostrich) and birds that hide the eggs with their own bodies (pigeon, turtledove) or natural materials (grebe). Auks live in colonies of many members at the ledges of cliffs. Each pair lays only one egg. Therefore, every egg has a specific colour configuration that allows parents to recognize their own eggs. The oval shape of the egg prevents eggs from falling from the cliffs. Northern lapwing is another example. This species lays grey eggs. Northern lapwings do not build nests; thusly their eggs must blend in with their surroundings as to not to be eye-catching. This helps northern lapwings protect their eggs from birds of prey.
2) Inquiry activity is introduced with a question: **„What exactly is a beak?"**
Beaks evolved from jaws by their expansion. A beak consists de facto of the lower and upper jaw. When the beak opens, both jaws move. Mammals can move only the lower jaw.
Do all birds have the same shape of beak? Give reasons for your ideas. You have a stuffed duck, bird of prey, flamingo, pelican, heron and cormorant at hand. After observing and touching the beaks, learners try to tell what food the species eat, how they get their food and how they eat it.
Different species have different shapes of beak. The shape adapts to specific methods of collecting food. I. e. chaffinches have strong, cone-shaped beaks that help them crack seeds. Herons have long, pointed beaks (like a dagger) for catching fish. Pelicans fish in groups. They try to get fish on a shoal and then keep them in their throat poaches. Cormorants follow their prey swimming underwater and use their long, hooked bills to stick fish. Ducks "stand on their hind legs" when they collect food. It means they dive with their tail up and head down and collect water plants and invertebrates on the bottom. Flamingos put their heads under water, suck water and filter it with their beaks. Small parts of plants (that flamingos eat) gather inside the beak. Frigate birds steal fish from other birds while flying. They disturb other birds until they drop their prey. Hummingbirds have thin and narrow beaks adapted to sucking nectar from flowers. Birds of prey have sharp, hooked bills, jagged on the edge of the upper jaw which helps cut the prey. The shapes of beaks are shown on the stuffed birds (duck, heron, pelican, bird of prey, cormorant, and flamingo).

Is there a relation between the shape and function of the beak and the biogeographical range of birds?
Yes. There are various natural conditions in the whole world offering a different type of food. Birds with their specific shapes of beak live in areas that offer enough food of which they are adapted to. Over time, birds adapted the shape and function of their beaks to different areas that offer specific type of food.

PRACTICAL EXPERIMENTS: „Pick it up!" or "The beak is not like the other beaks"
Learners are divided into four groups. They get six different tools (splitter, wrench, small tweezers, large tweezers, drinking straw, and sieve) and six types of food (pieces of carrot in water, tube-like jar with juice, millet and seeds, apple with seeds, roll, nuts). The tools simulate birds' beaks; the types of food belong to different bird species. Learners must try to peck a piece of food. Their practical knowledge will help them to match the right beak to the type of food according to their ideas about the ease of getting and processing the food. Learners then describe the shape and function of the beaks and decide which type of food belongs to them.

LECTURERS'ADDITIONAL QUESTIONS AND ANSWERS TO THE TOPIC, TO FILL IN AND LIVEN UP THE LESSON:
What do we mean by pneumatized bones? Pneumatized bones are hollow.
Why are bones pneumatized? It lowers birds' body weight and helps save energy for flight.
How did wings come to be? Wings are metamorphosed front legs. The bones were reduced, mainly in wrist and hand.
Do birds take care of their feathers? Why? They do. Feathers are strained and exposed to wiping. That is why birds clean, grease and beak-smooth feathers. Other forms of care are scratching, ruffling, bathing, dust-bathing and sunbathing. Birds also change feathers (moulting). The old feathers fall out and are replaced by new ones growing from the same pouch. Moulting is hormonally controlled. Every species moults at least once a year.
What are the two functions of birds' feathers? Feathers reduce (wind)drag when they fly. Feathers also protect and insolate birds' body.
Why do birds have strong legs? Strong legs help for an easier take off and a softer landing.
What are air sacs for? Do birds have lungs? Birds have both lungs and air sacs. The air sacs help the respiratory system be more effective. Air sacs are connected to lungs. Together they are a circulatory system. Air sacs are made of thin membranes without muscle mass and function similarly to a human diaphragm.
Why do birds have highly effective respiratory systems? Birds live in higher altitudes. The air is thinner here – there is also a lesser amount of oxygen. Therefore, birds must take in more oxygen to be active in the air.
Why is a birds' skeleton light but also solid? This is crucial for the ability to fly actively. Birds must have light bodies to be able to take off. Their skeletons must be solid to resist air-resistance.

Why is a birds' skeleton light but also solid? This is crucial for the ability to fly actively. Birds must have light bodies to be able to take off. Their skeletons must be solid to resist air-resistance.
What is birds' body temperature? Is it variable like reptiles' or stable like mammals'? The body temperature is stable. Birds, unlike reptiles, belong to homeothermic animals. Their body temperature is 41° C, a little higher than mammals'. The temperature is caused by their feathers cover that helps to insolate it.
How is a penguins' wing different from other birds' wings? Penguins' wings are completely different from other birds' wings. Their bones are flattened. Penguins' wings are similar to a fin.
Why don't penguins fly? Penguins are adapted to swimming. Swimming is unconditionally needed to survive in extremely cold conditions.
How are rheas' feathers different from other birds' feathers? Rheas have frayed wing feathers. The rhea is a flightless bird species. Its head, neck and thighs are feathered. Both wings have a claw to fight predators.
Learners are shown some feathers. Their task is to recognise to which species the feathers belong (cassowary, owl, parrot, flamingo, bird of prey's wing, and peacock). Cassowary (soft, small, white), owl (soft; owls fly silently in the night), parrot (colourful), flamingo (pink-red), bird of prey (coloration, soft), peacock (characteristic structure, long, coloration – piercing call).
How do birds reproduce? All bird lay eggs. Most bird species are monogamous and reproduce only in pairs. They lay eggs in nests or someplace protected from predators. At least one of the pair broods.
W**hat precedes reproduction?** What is mating behaviour? Mating behaviour, generally, is anything males do to lure females into mating. Males display themselves visually or with singing. Every species has a very specific mating behaviour. Some species have impressive and extraordinary behaviour. I.e. peacocks and their colourful feathers, the dancing of cranes or the acrobatic and headfirst flights of eagles. Grouse males fight for females in a special spot. The male displays an impressive sound and motion ritual. He gives his airs and walks around proudly. Learners can be asked to look for a stuffed grouse in the classroom to make sure they know what this bird looks like.
Which part of the egg protects the embryo? Embryos are protected by the thin but hardy eggshell on the surface of the egg.
What is the embryo nourished from? The embryo is nourished through a large reserve of yolk that is inside the egg.
Is the eggshell an impervious barrier? No. The eggshell is made of calcium carbonate. Females take calcium carbonate from food. It allows the exchange of oxygen and carbon dioxide between the inside and outside of the egg.
What do the nestlings look like after hatching? Do they all look alike? The nestlings are not alike. Mostly the chicks hatch blind and bare. They are not able to control their inner body temperature, so parents must brood them and keep them warm. These chicks are called altricial and are completely dependent on their parents. On the contrary, some chicks are precocial. These chicks are down-feathered and able to manage their own food, so they are not dependent on their parents.

Source: Bicánová (2015)

The teaching activity "Know a blackbird by his nose" was carried out for a total of 370 children during the years 2015–2016. A total of 250 pupils in the 2nd stage of primary school (aged 12 to 15 years) participated in this activity in the Educational Centre at the Hluboká nad Vltavou Zoo. The authors also implemented the activity during the same period within suburban camps called "Zvídavý zvěd – Curious rubberneck" that were organized by the Department of Geography of the Pedagogical Faculty of the University of South Bohemia in České Budějovice. Here, the activity was done with 120 children aged 6 to 13 years. The presumption of attractiveness of the IBE methodical approaches and their popularity among pupils regardless of their age was confirmed through the realization of the activity across different age categories of pupils in the 1st and the 2nd grades of primary school (Karvánková et al. 2017, Dostál 2015).

The correct realization of the teaching activity "Know a blackbird by his nose" motivates the pupils and increases their affection for animals. Pupils also get some knowledge about their zoogeographical area. The activity raised the interest of children for nature and the life in it. The basic principles of the IBE were fully fulfilled which is based on the fact, that learning should be interesting, entertaining, and as effective as possible for pupils. During the activity, pupils gained and developed component practical skills and abilities and thanks to this, they could better understand the gained knowledge about living nature. The important point was the confirmation of the fact that the real experiences and feelings of pupils that arise with direct contact with animals are an added value of the learning process and at the same time, a strong motivating element leading to increased interest of pupils in the given subject. Concurrently, during the course of the activity, there is a perfect example of the so-called "unintentional learning" (Petty, 2013) being implemented, when pupils, as a bonus, get information about e.g. the correct treatment of animals, proper behavior in a Zoo, they learn about nature and landscape conservation, or also what to do if they find a wounded animal, etc.

The teaching activity "Know a blackbird by his nose" focuses on selected representatives of the animal kingdom, specifically the vertebrate sub-family. From this wide range of animals, the authors concentrated only on the bird class. The reason for choosing this particular class is the attractiveness and variety of individual representatives, which give pupils an enormous interest in learning more about birds and their lives. According to Burnie (2014), birds are popular with children mainly because of their colored feathers and the cosmopolitan way of life. This theme was chosen on the basis of practical experience gained and observed throughout the year (2016) as part of the educational program in the Educational Centre at Hluboká nad Vltavou Zoo. The interest of the children in individual groups of animals was monitored. On the basis of these findings, the animals that create the greatest interest in inquiry (mainly birds, snakes and mammals) were evaluated. Therefore, proposals have been made for more detailed and sophisticated educational programs concerning these animals, with an emphasis on using the principles of inquiry-based learning.

Conclusion

The main goal of this paper was to show ways of carrying out geography lessons less traditionally and more inspiringly. It also explains how to make geography and biology (resp. natural sciences) more interesting for school learners. The learners themselves become the "authors of the story" or the "curious explorers" during the lesson. The experience from the presented learning activities using "pupils' inquiry" shows that this kind of education awakens learners' interest in living nature. The crucial principle of these learning activities is that learners verify their school acquired knowledge, skills and experience in practical life. Above all, this is possible through direct and active contact with the topic and observation of real animals. Learners can then apply their knowledge from their school education to real life.

The presented learning activities can be used also as an unusual above-standard service to common geography or natural sciences education. This above-standard service cannot be used in schools every day (because of lower time allocation etc.). Learners are encouraged to learn, see and try something unusual and interesting from the animal world through these learning activities. Realization of a learning activity is suitable for geography or natural sciences clubs or as a part of extracurricular educational programs of educational centers by Zoos, etc.

Geography is a multidisciplinary subject. It has natural-scientific characteristics as well as social-scientific. This allows geography to be a subject that helps learners gain a general view of nature. Learners are able to get to know nature and the world around us as a single unit and a functioning system. All parts of this system are interconnected; they influence each other and their surroundings in different scales. The geographical education (not only in the Czech Republic) needs a change, to "get a second wind" leading to activation and modernization of lessons and ways of transmitting the information to the learners. Putting the inquiry principles as well as other didactic methods and forms geography can use (philosophy for children, global education, using mobile applications etc.) into the educational content of this educational area can positively explain why geography is an important part of the (Czech) educational system.

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