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THE ROLE OF DIDACTIC TRAILS IN GEOGRAPHICAL EDUCATION IN POLAND

Abstract: The paper presents the goals of creation of various kinds of didactic trails in Poland. Various methods of presenting information and of conducting geographical field trips on such trails are described. Thanks to that, it is possible not only to broaden the students' knowledge about the given area but also to develop numerous skills and attitudes leading to the awareness of the geographical environment and its value in human life. The paper contains also a procedure for creating one's own didactic trail in the nearest area.

Key words: didactic trail, geographical education, educational goals, activating methods.

For a few years now, the so-called educational paths exist in Polish schools, apart from the classical school subjects such as geography, biology, chemistry. These are mandatory forms of teaching on three levels: in primary schools, in lower-level classes of high school and in upper-level classes of high school.

Educational paths in school are classes dealing with topics not fitting within one school subject, thus interdisciplinary ones. The goals of each educational path, its contents, the tasks of the school as well as students' achievements are described in appropriate documents of the Ministry of Education. They are realised by teachers of various subjects within the lessons of the given subject or as separate classes.

There are three educational paths related to the teaching of geography: "Ecological education", "Regional education – cultural heritage in the region" and "European education".

Educational paths should not be confused with **didactic trails**. Didactic trails are trails actually existing outdoors. Their course is determined by various places (called points or stations) interesting from various points of view: natural, ecological, cultural and others. The scope of the topic presented on the given trail or the place on the trail determines its general name (or kind). Therefore, there are natural, historical, archaeological, geographical, ecological trails; forest trails, mountain trails, etc. Various combinations of trails are also possible, depending on the prevalent topics.

In general, their terminology depends on the knowledge and imagination of the author of the trail.

Trails are usually marked in the area; that is, tables with information are put at certain points of the trail (Photo 1, Photo 2). Various technical means of creating and securing such tables exist: tables can be made for instance of glass, Plexiglas, plastic or of wood with the information burned in it. In the early time of the existence of a trail in the Kabacki Forest in Warsaw wooden tables were installed, with text attached and secured with plastic foil. Later, more elegant tables with small wooden protective canopy were made. Because of high costs of making of tables and markings, the description of the trail (and the marking or trail's route on the map) is more often included in a flyer available, for instance, at the local town, borough or village administrative office (Tuszyńska et al., 2000), in forester's lodges, forest district offices (Boiński et al., 2001), in educational centres (Ćwikowska, Ćwikowski, 1996), research stations (Angiel, Angiel, 2001), tourist information centres, administrative offices of landscape and national parks (Michalik, Partyka, 1992; Loch, 1998; Jakuczun, 1999), and even at schools (Konotopska, 1998). Posting of the information on web sites will probably be more frequent. It is worth noting that information is sometimes given in several languages (Bartoszewicz, Pampuch, 2003).

The history of didactic trails in Poland goes back about 25 years. Their sudden development in recent years is probably related to the increasing ecological awareness of the Polish society, the increasing awareness of the regional identity, the development of tourism (including ecotourism, agrotourism and family tourism). Another influences are also: the education reform in Poland, the introduction of ecological and regional educational trails to the teaching programmes, as well as "moving out" of the teaching of certain subjects from school buildings into the local environment – that is, the "teaching about nature in nature" and not only on the basis of textbooks and teacher's lectures.

There are many reasons why didactic trails are being created. Usually they correspond to the selected goals of the geographical, regional or ecological education. The goal of regional education in primary school is **getting acquainted with the nearest environment and the specific characteristics of one's own region**. In lower-level classes of high school, the goal is **getting in touch with the local and regional environment so as to create close ties and understanding of manifold affiliations of humans as well as to strengthen the awareness of the national identity through the development of a regional identity**. One of the assumed achievements of the student at this educational level is **the ability to present one's own region, its qualities and the distinguishing characteristics**.

The goals of geographical and ecological education in lower-level classes of high school are:

- Inspiring interest in the geographical space in the wide sense of this word (including one's own region);



- Promoting awareness of the values of one's own region;
- Promoting awareness of the threats to the natural environment, occurring in one's domicile;
- Inspiring respect for nature.

At this level of geographical and ecological education, the students' achievements should include:

- An ability to perceive, describe and explain the connections among the components of the environment, the humans and their actions;
- A critical analysis of the relationships between human actions and the state of the environment.

Didactic trails create good opportunities for the realisation of the above-mentioned goals of geographical education and of education in other subjects (in Poland: in primary school, of teaching about nature, while in high school, of biology, history, physics and chemistry), as well as of educational paths.

Thanks to field trips students are able to see the unity of the geographical environment and their own role in it. Working with students outdoors allows also for combining of various approaches, such as:

- Complex approach, combining knowledge from various subjects;
- Problem-orientated approach;
- Analytic and synthetic approach (perception of the components of the geographical environment as such and perception of the geographical environment seen as an integral whole);
- Subject approach, orientated towards the differences in perceiving, understanding and responding to the environment by the individual participants;

- Showing the spatial differentiation of the geographical environment and its changeability in time, which is characteristic for geography;
- Pro-environmental attitude (knowledge of geographical environment together with the direct knowledge lead to the willingness and ability to act for the good of the environment);
- Forming of the local and regional awareness and of attitudes of taking responsibility for the environment;
- Creating a hierarchy of values in human life, social awareness (also an ecological one) and pro-environmental attitudes;
- Discovering of the beauty of the landscape and creating a negative reaction to the destructive actions in the nearest environment;
- Developing the ability to see a given area with an eye on its proper development (evaluation of the current state, ability to foresee changes, planning and realisation of pro-environmental actions).

Nowadays, didactic trails exist in every region of Poland. There are trail in mountain areas (Pulinowa, 1995), foothills (Angiel, Angiel, 2001), upland areas (Michalik, Partyka, 1992), lowlands, including: lakeland areas (Miszkiewicz et al., 2004), in coastal zones (Jakuczun, 1999), in river valleys (Boiński M. et al., 2001), etc. They are often called after the leading element of the environment or the field, such as: historical trail, natural trail, cultural trail, archaeological trail, geographical trail, geological trail, forest trail or rock sculpture trail. An increasing number of trails are localised in urban areas, most often in city parks and in natural reserves in the outskirts of cities (Tuszyńska et al., 2000).

The closer to the school the didactic trail is located, the more often it is used. A trail located close to a school makes it possible to utilise the local environment and its characteristic features as the best didactic means in geographical education. Classes take place without the students' wasting time for commuting.

Teachers are happy to use existing write-ups and flyers describing the trails. This is justified especially in a foreign terrain, visited by the teacher and the students for the first time, e. g., during classes of the so-called green (summer) or white (winter) schools. A green or white school is an excursion with the students outside their domicile, lasting a few days, most often to another region. During the excursion classes, including outdoor ones, are conducted. It is recommended, however, that the teacher, apart from getting to know the contents of the brochure (topics of the lessons), do a field reconnaissance and adapt the duration of the classes (the length of the route, the topics, the variety and the number of tasks to be performed) to the difficulty of the route, the capabilities of the students, as well as to the season (the length of the day).

Some teachers modify existing trails, adapting the scope of the topics and tasks to the given level of education. They expand the topics which they regard as essential for the given group of students with their own materials and create for them appropriate connections (inter-subject or inter-topic



correlations). This way valuable topic sequences are created, which makes it easier for the student to think in terms of causal relationships.

The author examined about 150 printed flyers for didactic trails, realising that this is only a part of existing materials. For the presentation in this paper, 20 brochures have been selected. The criteria used were: diversity of topics, localisation in various regions of Poland, different time of creation of the trails. In each flyer there is a description of the localisation of the trail, usually with a map of the given area included. Mostly these are flyers with descriptions of features, phenomena or processes typical for the given area. Usually a rich photographic material documents the trails. Some of them include also sketches, maps, profiles and block diagrams presenting, for instance, geological structure of the given area or processes taking place there (e.g., landslide, creation of a delta), plots of water levels and through-flow recorded in the nearby river. There are interesting drawing representing the life and work of people inhabiting the nearby areas (e.g., tools used in an old glass factory (Loch, 1998)). We can also find there various cross-sections, for instance, of river valleys or caves, as well as schemes (e.g., of creation of dripstones in caves (Michalik, Partyka, 1992)). Such illustrations are typical for geographical trails. In materials for nature-related trails, apart from photographs, there are numerous drawings of plants and their components, of animals and places where they live; diagrams presenting, for instance, the species composition of the given forest or the relative share (in percents) of various habitats, the layer structure of the forest, as well as various cross-sections, e.g., across peat lands; Ćwikowska, Ćwikowski, 1996.

The variety of the illustrations enriching and completing the contents of the publications describing trails makes them a rich source of information about geography and a valuable teaching material for the teachers.

It has been observed that the points of the trail (also called stops) are often localised in certain characteristic places. Most often these are:

- Creek, river, riverbed, valley, wellspring, lake, pond, causeway;
- Meteorological station;
- Forest, clearing, meadow, field, road, orchard, balk;
- Marsh, wetland, peatbog, reed swamp;
- Cave;
- Scenic point, mountain, slope;
- Natural monument, natural reserve, protected ground of ecological importance, historical tree alley;
- Quarry, mine, old steel factory, gravel pit;
- Edge ..., border ..., frontier ...;
- Castle, manor, palace, house, mill, power plant, farm, forester's lodge;
- Cemetery, grave, cross, church, chapel.

Most often repeated topics in the texts were:

- Plants and animals, fungi, lichens;
- Tree species, biological differentiation, functions of the forest, forest habitats, vegetation succession, protection of the forest from insects, life in dead trees, anthills, forest management;
- Ecosystem of a creek or of an old riverbed;
- Land use, farmland, soil degradation, soil protection;
- Inter-field plantings and their role, ecological agriculture;
- Nature preservation, landscape, architecture – historical monuments, preservation of historical monuments.

The following topics may serve as examples for projects at the point "River":

- Elements of river networks, elements of a river valley
- River banks: preservation, management
- Hydrological observations and measurements
- The role of the river in the geographical environment
- Old riverbeds – reconstruction of the old run of the rivers; old riverbed as a protected ground of ecological importance
- River valley landscapes; "reading" a landscape
- River actions and their relief-forming role (the process of erosion, transport and accumulation)
- High waters and floods – results and causes
- Water management in a river basin
- Modern functions of rivers and river valleys
- Tourism and recreation on river banks – influence on geographic environment
- Modern management of rivers and river valleys
- Forms of protection of rivers and their valleys.



Most of the published trails have been written by foresters, nature scientists, researchers, etc. The readership of these materials consists mainly of teachers and students. The problem with the materials, however, is that in many of them the knowledge is not translated into practical skills or student skills. Among the selected 20 trails, practical exercises are included only in two cases. In the remaining cases the teachers have to construct the appropriate questions and exercises. Here are examples of such exercises and questions:

point “widna mountain”. reading the map and “reading the landscape”

- Orient the topographical map. Find Widna Mountain on it. Read its absolute height.
- Show the church tower in the village of X and the Y Mountain. Show the lines of ridges and valleys (flow lines). What is their direction?
- Describe the landscape that surrounds you. What are its characteristic features that distinguish it from other landscapes? What elements of the landscape do you see? Give examples of interrelationships between these elements. What are the causes for the changes of the landscape? List the processes causing the changes.
- The landscape you are seeing in front of you is transformed by the humans. Do the natural and the anthropogenic elements of it form a harmonious whole? Which fragment of the landscape do you like

most? Which one would you choose to take a photo of? Explain your decision.

- Estimate (approximately) the percentage of the visible landscape occupied by the forests. Compare the afforestation indicator obtained this way with the analogous indicator for the whole country. What conclusions follow from this?
- Do the forests occur at the bottom of the river valley, on hilltops, or on the slopes? Describe the connection of the localisation with the processes of soil erosion.
- Write down the names of four tree species growing on the slope of the mountain. Draw the shape of their leaves.
- Consider the localisation of the village of X with respect to terrain forms. What are the positive and the negative consequences of such localisation?
- What kinds of borders do you see in the terrain that surrounds you? Of what do they consist?
- What creates the tourist amenities of this region? Rank the amenities on the scale from 1 to 6.

Laying out the instructions and exercises in form of a “Student’s Work Chart” facilitates carrying out the exercises. The student fills out the chart during the field trips; it is the result of his or her work, and for the teacher it constitutes an easy to grade test of students’ achievements.

Many teachers design their own didactic trails in the nearest neighbourhood. They can connect the diagnosis of the closest environment (answer the question “of what kind it is?”) with the reflection “why this is so” and the vision “how should it be” as well as with the answer to the most important question “what to do to make it how it should be”. Such approach creates the possibility of designing a didactic trail around the school together with the students and therefore constitutes a valuable didactic innovation.

We start the design of one’s own didactic trail with the choice of the area and the field reconnaissance. From the point of view of the organisation of classes at school it is best if the exercises on the didactic trail, together with the time needed to walk there and back, fit within one class unit. It is worthwhile to create variants of the route. This is a good solution also because it makes possible to shorten or lengthen the class depending on the students’ form, weather conditions, etc. One should consider the didactic materials needed during the preparation of the trail, during the field trip on the trail and during the work in class.

Before setting off, one should:

- Get a topographic map of scale 1:10 000 or 1:25 000 (but not smaller) of the given area.
- On the map, draw the approximate route to be researched.

During the fieldwork, one should:

- Mark on the map the starting place and write down the start time; watch the places passed and changing landscapes: characteristic ob-

jects, their arrangements in space; find a place which inspires to ask questions, encourages reflection, stimulates imagination; write down the time needed to reach such place; mark the given point on the map.

- Create a list of one's own questions regarding the given place (e. g., whether, what, who, which, where from, where, when, why?); form questions (topics) into appropriate thought sets, for instance:
 - Time – changes – processes – mechanisms – factors – actions – conditioning – differences – similarities – characteristic features
 - Elements (e. g., of an ecosystem) – connections – dependencies – mechanism of the action of the entire system, etc.
 - Past – present – future of this place
 - Humans → environment → humans
 - Knowledge – awareness – skills – changes (action) – attitudes – values
- Choose the most essential questions and issues for the given problem (place), write down the name of this trail point (or the main theme) so as to make the name reflect the specific character of this place or of the didactic goal (planning of students' achievements);
- Define the tasks for the students, work methods, teaching aids;
- Make photographs at the given point.

After a certain time one should review and verify the ideas regarding: the course of the route, the placement of the didactic points on it, the choice of topics-problems, the ideas for exercises (work charts). One should go to the trail and:

- Write down the time of leaving. Count the time needed to go from one trail point to another.
- Perform the tasks at given points (to check how much time is needed).
- Create possible variants of some routes from one point to another (e.g., variant for shorter field trips, variant for more in-depth topic for groups interested in the given issue, variant for various seasons, etc.).

The following are the results of fieldwork:

- Knowledge of the course of the entire route, of its easy and difficult segments, the possibility of the choice of the points and of the shortening of the trail, time needed to reach one point from another as well as the time needed to perform the tasks at particular points.
- Awareness of the goals and effects of work (planned achievements).
- Topics (issues) and tasks to be performed at particular points.
- A map with the route of the trail, series of photographs taken at various points.

The stage of work in class consists in:

- Critical review, selection and sorting out of the notes.
- Making the final version of the map (scanning the fragment of the map together with the route drawn on the map).
- Developing the photographs, selecting and choosing the best ones.

- Collecting and studying the relevant literature.
- Creating a write-up summarising the work.

One of the advantages of conducting classes on didactic trails is the possibility of applying activising educational methods, which develop the ability to perceive the environment and the various connections between the environments and the humans. A creation of pro-environmental attitudes takes place thanks to a direct contact of the students with the environment, to acquaintance and understanding of the mechanisms of its functioning and to the awareness of one's role in the changes happening in the environment now and in the future.

REFERENCES

- Angiel J., Angiel M., 2001, *Dydaktyczna ścieżka przyrodniczo-geograficzna "Pogórze Karpackie"* (Natural-geographic Didactic Path "Carpathian Foothills"; in Polish), Instytut Geografii i Gospodarki Przestrzennej UJ, Kraków.
- Bartoszewicz A., Pampuch T., (eds), 2003, *Leśne ścieżki przyrodniczo-dydaktyczne na terenie Warmii* (Natural-didactic Forest Trails in the Warmia Region; in Polish), RDLP, Olsztyn.
- Boiński M. et al., 2001, *Ścieżka przyrodniczo-dydaktyczna "Jelenia Wyspa"*, Bory Tucholskie (Natural-didactic trail "Deer Island", Tucholskie Forest; in Polish), Forest District Office, Tuchola.
- Ćwikowska N., Ćwikowski C., 1996, *Ścieżka przyrodnicza „Ustrzyki Górne – Wołosate”* (Natural Trail "Ustrzyki Górne – Wołosate"; in Polish), Ośrodek Naukowo-Dydaktyczny Bieszczadzkiego Parku Narodowego, Ustrzyki Dolne.
- Jakuczun B., 1999, *Procesy przyrodnicze. Przewodnik dydaktyczny po ścieżce przyrodniczej* (Natural Processes. Didactic Guide to a Natural Trail; in Polish), Woliński Park Narodowy, Międzyzdroje.
- Konotopska, J., 1998, *Ścieżka dydaktyczna w Zespole Szkół Ogrodniczych w Wośnikach. Antropogeniczne zmiany w środowisku przyrodniczym* (Didactic Trail in the Horticultural School Complex in Wośniki. Anthropogenic Changes in the Natural Environment; in Polish), Centrum Edukacji Ekologicznej, Radom.
- Loch J., 1998, *Dolina potoku Turbacz – przewodnik po ścieżce przyrodniczej* (The Turbacz Creek Valley – A Guide to the Natural Trail; in Polish), Wydawnictwo Gorczańskiego Parku Narodowego, Poręba Wielka.
- Michalik S., Partyka J., 1992, *Ścieżka naukowo-dydaktyczna "Chełmowa Góra"* (Scientific-didactic Trail "Chełmowa Mountain"; in Polish), Ojcowski Park Narodowy, KAW, Kraków.
- Miszkiel et al., 2004, *Odkryj z nami tajemnice Krukłanek – ścieżka przyrodniczo-edukacyjna* (Discover with us the Secrets of Krukłanki – A Natural-educational Trail; in Polish), Fundacja Ochrony Wielkich Jezior Mazurskich, Giżycko.
- Pulinowa M. Z., 1995, *Ścieżka skalnej rzeźby w Górach Stołowych* (The Rock Sculpture Trail in the Stołowe Mountains; in Polish), Park Narodowy Gór Stołowych, Kudowa Zdrój.
- Tuszyńska L., Suska-Malawska M., Brzeziński M., 2000, *Ścieżką przez las. Las Kabacki. Rezerwat przyrody im. S. Starzyńskiego* (A Trail Through the Forest. Kabacki Forest. S. Starzyński Natural Preserve; in Polish), Warszawa.

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