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Interactive educational trail as a teaching aid

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Summary

This article deals with the problem of educational trails and their use for teaching using digital technologies. The first section of the paper describes what the nature trail is and what its types are. It also discusses the possibilities of using the nature trail itself and how to create and use the nature trail with the help of digital technologies. An example of an interactive nature trail created in the town of Stříbro in the Czech Republic and how to include this activity in teaching.

Keywords: Educational trail, education, QR codes

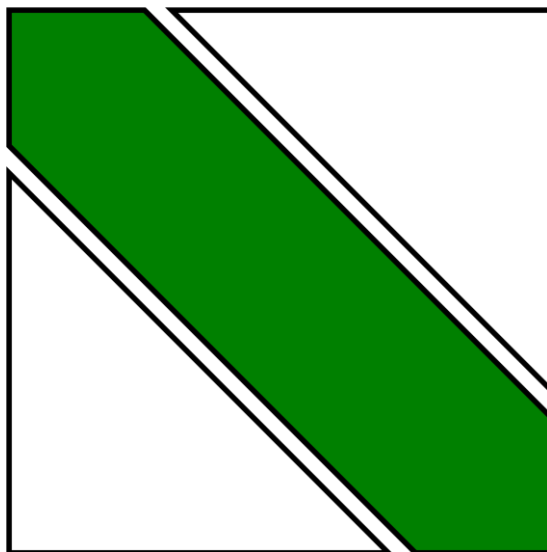
Introduction

Educational trails are a non-violent form of educational text that has quite a lot of potential that can be used in ordinary teaching. Because we live in a digital age, these two things can be linked. Therefore, in this article we will deal with their description and use for teaching using digital technologies.

What is an educational trail?

The educational trail is a specially marked path that leads through the natural environment so that it is possible to demonstrate and explain interesting phenomena in the area. It is a selected and specially adapted tourist route in a scientifically and historically interesting area. There are stops in the field with descriptions of natural, landscape and cultural attractions and characteristics of the area. These are marked in a guide booklet or other material and are marked on the trail with stop numbers or described directly in the field on boards where there is text with illustrations (Friedlová et. al, 1990). Information panels should be placed as evenly as possible. The site should ideally address a specific topic or phenomenon that can be observed from where the site is observed (Krzystek, 2014).

In order for the educational trail to be easily recognizable, it also has its own markings, most often marked with a white square measuring 10x10 cm with a diagonal green stripe running from the upper left to the lower right corner, it is an agreed sign for educational trails. But some trails may be marked differently, such as their specific markings (such as a sign with a logo), signs, or they may lead along an existing tourist-marked route (Stezky.info, 2009).



Picture 1. Sight of educational trail (source: wikipedia.org)

Theme of educational trails

There are some of the most common themes of educational trails. They can be divided according to topics, content, usage and location (Stezky.info, 2009). We divide them into:

- Forestry
 - the trail leads mostly through a suburban forest or forest park, and informs in general with the fauna and flora of the forest, forestry, logging, etc.
- Mining
 - lead the region, which in the past was famous as a significant site of minerals, precious metals, etc., which were mined here. The trail visits places with preserved remains of historical mining, dumps, secured entrances to galleries, etc.
- Geological
 - get acquainted with important geological localities, rock outcrops, old quarries, mineral deposits, fossil deposits
- Ethnographical
 - trails that provide a general overview of the landscape they pass through and the attractions on the route
- Naturally protective
 - usually those that comprehensively acquaint with one particular protected area, i.e. its fauna, flora, etc., with the proviso that each panel is usually devoted to one panel
- Urban
 - they usually lead through the historical center of the town or village and its immediate surroundings, get acquainted with architectural and other monuments (churches, original urban development, monuments, technical

- monuments), interesting architecture, city fortifications (walls, gates), etc.
- Sports
 - they occur mostly in suburban forests or forest parks. They consist of several sports fields and information panels with recommended exercises

How to create an interactive nature trail

It is important to determine the goal of the educational trail. Will we want to target the trail for the general public or only for 6th grade children? Will we want to create a completely new educational trail with our own text and board design, or will we use existing educational trails and adapt it only to our requirements?

So, if we have a chosen intention, it is up to us how we process the given path. Probably the simplest option is to use an existing educational trail boards and create additional material or tasks. And since we are talking about an interactive educational trail, it can be assumed that we will include modern technology in the elaboration of the task.

Probably the easiest way is to create tasks, to the already created educational trail using the web form, generate a URL and create a QR code.

It depends on what platform we use to create the forms. From your own experience, it's easiest to work with Google forms. They have various functions, you can add pictures, videos, choose from different types of answers (open, closed, answer selection, grid, file upload, ...) and after sending the answer you can immediately show the correct answers - that is, if it is a separate work, you can also have direct feedback for participants. You will receive your own URL from each form, from which you will generate a QR code. The downside is that you have to create one separate form for each task. For example, you have to make ten individual forms for ten sites.

After we have completed the tasks and created QR codes, it is necessary to print the relevant codes and place them along the route, where there is a educational trail or some interesting area for which we have created the given tasks / texts.

Another option that is time and money consuming is to create your own website or mobile application. However, this already requires some knowledge of programming and the software.

An example of an interactive educational trail

As an example, I would like to show the interactive educational trail I created to the already created educational trail, which contained information boards with text. I created it as more as feedback on the given boards and information that I can learn from the text. It is an educational trail in Stříbro, which covers the topics of history, mining and geology. It is designed for primary school children and the general public. It is 3 km long and has ten quests.

Goals

- The trail should present the issues of geology and mineralogy, mining and also the history of Stříbrsko in an entertaining way;
- combine classical teaching with an experiential form of teaching with the help of modern technologies;
- children will receive using their smartphones, which will read the given QR code. After completing the task, they will be taken to the next quest, where a new task will be waiting for them;

- the educational trail will work with existing nature signs or interactive stops with QR codes, which are included a few times;
- the trail itself will have several stops, which will be arranged so as to form a kind of path that participants can manage to pass in a few hours, and therefore should not be so time consuming that it can be used without any problems during the school day.

Tasks

- create a path with quests
- develop a worksheet for the path and convert it to digital form to be compatible with QR codes

Solutions

- create forms in Google forms
- the correct answers are displayed immediately
- Information can be found on the city / information center website
- no line is needed, just find the first station

Path

- According to mapy.cz, the trail is less than 3 km long
- The trail should be manageable within the hour
- begins at the 13th meridian and ends at the Kostel Všech Svatých
- the trail leads through a city park - a more challenging section of the road
- from the park to the Bridge Gate, the trail leads through more demanding terrain -> some firmer shoes are needed



INTERAKTIVNÍ NAUČNÁ STEZKA PO STŘÍBŘE

Nenáročná naučná stezka, která prověřuje znalosti v oblasti **historie** a **geografie**. Stezka je určená pro 2. stupeň ZŠ a SŠ, ale také i pro širokou veřejnost.

Stezka má **cca 3 km** s **10 stanovišti**.

Každé stanoviště má svůj **QR kód**, který ukrývá úkol. Po vyplnění se dozvíte, kde je další stanoviště a následně se můžete dozvědět i správnou odpověď.

Co bude potřeba: mobilní telefon s připojením na internet a aplikací pro čtení QR kódů
Start: u 13. poledníku

Mapka ke stažení zde:



<https://tinyurl.com/ydf9ow6t>

Vytvořila E. Dostalová v rámci předmětu KPG/MTV.

Picture 2. Poster for interactive educational trail (source: Eliška Dostalová)



Picture 3. QR codes for educationl trail, source: Eliška Dostalová

Implementation in teaching

I think we can easily include this activity in teaching. Because in the vast majority of places around the city there is a educational trail that can be worked with. So, it can be used during a normal school day or as part of an excursion, school trip or project day. The vast majority of all students already have smartphones with internet access, so even this thing will not be an obstacle for me. There are also interdisciplinary relationships, in most cases mainly science subjects and history. Furthermore, this concept is suitable for some group work and mutual cooperation. During this activity, learning, problem-solving, communicative, social and digital competences are developed.

Conclusions

In this article, we have concluded that it would be good for this activity to be included in normal teaching, as I think it is a playful form of education that develops a wide range of educational competencies. They are also very suitable for use with digital technologies, as the output can only be a QR code, which is easy to produce and easy to manipulate.

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