

Turtle and children on Moodle e-learning platform

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Abstract

Computer Assisted Education and Information Technology Centre organized workshops for primary school children on Moodle e-learning platform. The objectives of the project were to study programming in Logo, getting familiar with the Imagine environment, improving electronic communication and learning to gain new knowledge in Internet-based courses. There were 2 face-to-face meetings and 56 working hours on e-learning platform. Children solved different programming tasks, quizzes, actively participated in the forum and performed other activities. During courses the children created beautiful multimedia projects. For students it was a good opportunity to create a collaborative community and to discuss problems with fellow classmates from others schools.

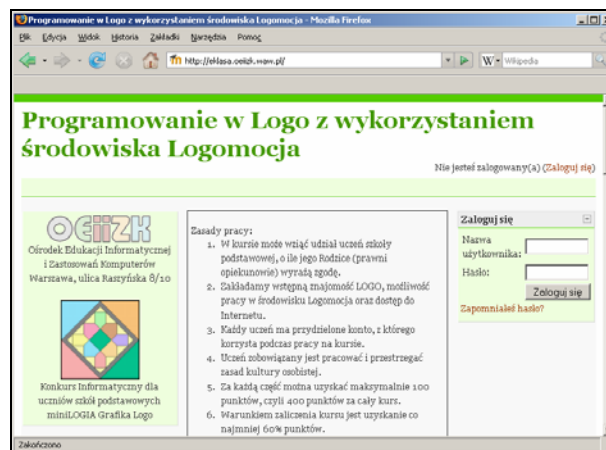


Figure 1. The main webpage for the project (<http://eklasa.oeiizk.waw.pl>)

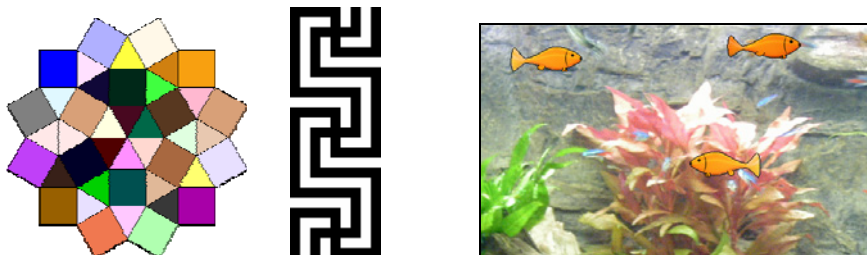


Figure 2. Examples of tasks

Keywords

Logo, Imagine, primary school children, e-learning platform, Moodle

Introduction

Computer Assisted Education and Information Technology Centre is an in-service teachers training institution, which specialises in computer science and ICT. It provides support for teachers in their professional development as far as computer skills and didactic applications of information technology are concerned. Since 1994, programming contests for students have been organized. Currently, the competitions are held at two different levels - miniLOGIA - for primary schools children (up to 13-year-old) and LOGIA for lower secondary (up to 16-year-old). In response to demand we have started organizing an online logo programming courses for children.

The workshops for primary school children entitled “Programming in Logo environment” have been already organized twice. For the first time from December 2005 to February 2006, the second one was a year later – from December 2006 till January 2007. About 60 children from different schools in Mazowia district took part in both courses. Most of them were participants of miniLOGIA contest. Each course consisted of 4 hours face-to-face activities and 56 hours of distance learning on Moodle platform.

The objectives of our project were to study programming in Logo and getting familiar with the Imagine environment. Moreover, while taking part, students improved their computer communication skills and they learned how to gain new knowledge through the intermediary of the Internet-based courses.

Learning programming is difficult, so we were a little bit concerned about it. But the students proved that they did not have problems connected with virtual communicating and they were also ready to make a great effort to acquire new abilities.

Work principles

Every student of primary school, who had an Internet access and possibility to work in Imagine environment, could participate in our courses. Although most pupils had Internet connection in their homes, some of the participants could only work at school under their teacher’s guidance. To sign up for the course you had to fill in the form on the proper webpage. Registration was done by teachers of computer science, parents or children themselves.

Each student had an account on the Moodle platform to be used in the project. It allowed them to gain access to the system from any place with an Internet connection. On the other hand, it provided controlled access, so only the enrolled participants could use the system, so no user was anonymous.

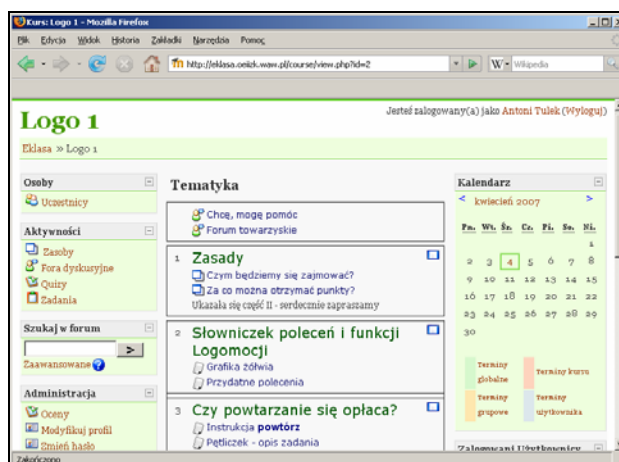


Figure 3. A webpage with resources and tasks for participants

To complete the course a minimum of 60% of all possible points were required. Every student who successfully completed the course received a certificate. For many children it was the first time in their lives when they were given such a document.

Curriculum and organisation

We divided a project organization in three different sections:

- first a face-to-face introductory meeting,
- working with the Moodle e-learning platform,
- final a summing up meeting.

The first meeting was organized in order to know each other and to integrate. This allowed us to take up the challenge to learn programming. During classes students got familiar with Moodle platform – how to navigate, where to find useful resources and how to do different assignments. These skills were very useful, because in next few weeks the students independently surfed. Moreover, in the first meeting they solved some algorithmic problems. The following weeks everyone worked on the e-learning platform which is described below.

In our last meeting we solved some more difficult algorithmic tasks in Logo graphics. Especially we were concerned for difficulties which the participants had during the course. But the most exciting was chatting with people known from working via the Internet and to watch other participants' work.

The course material was divided into four parts according to logical rules and the level of difficulty. The first part was dedicated to remind primitive logo functions and simple examples of using iteration were presented. In the second and the third part we improved ability to apply "repeat" instruction introducing more difficult problems. We also dealt with different tasks including fulfilling, using random functions, measurement and drawing pictures in various sizes. Fourth part was concentrated on recursion and testing. Moreover, in every part students had to create some multimedia project.

During the course students solved variety problems to develop programming skills - perceiving and formulating algorithm problems, constructing and analyzing solutions in the form of algorithms, expressing algorithms as procedures and testing them. We encourage students to read instructions carefully and to consider variety of ways to solve a problem to choose the best solution. We also practised coding procedures with frequent testing after each step. Moreover, students were encouraged to test completed tasks for different parameters, in random procedures checking many times whether the solution was correct and if it fulfilled all conditions required by instruction.







Imię / Nazwisko	Miasto
 Ignary Stefanik	Milanówek
 Katarzyna Masłowska	Warszawa
 Karolina Grodzka	Teresin
 Michał Radek	Warszawa
 Krzysztof Kwiatek	Warszawa
 Ewa Tomaszewska	Warszawa

Figure 4. A part of students list


Resources

Moodle supports a range of different resource types that allow us to include a variety of different materials – we usually used web pages and Imagine projects.


Projekt wykonany w środowisku **Logomocji**, zapisany jako strona WWW

Powtarzające się elementy


Określ, które elementy powtarzają się:



Wybierz

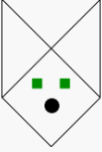
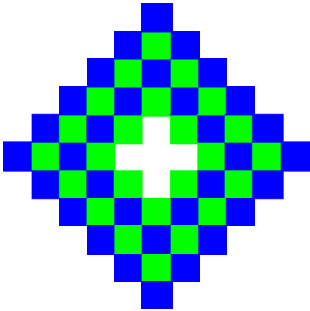

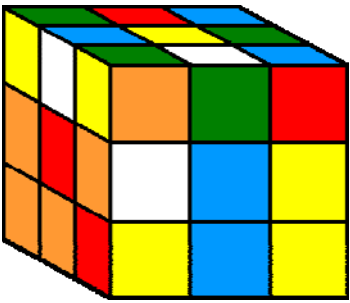
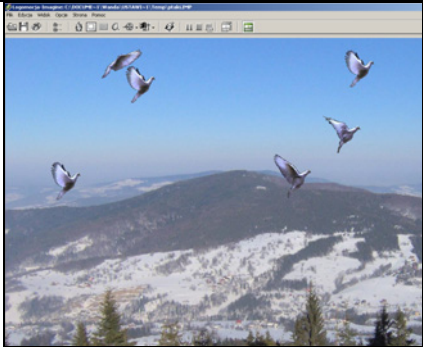


Wybierz



Wybierz

Ile razy trzeba wykonać powtarzający się element?

<p>Quiz</p> <p>In our course there were several quizzes. Most often they had 10 multiple choice questions. The major advantage of this module is that it is self checked and students receive a feedback just after solving it.</p>	<p>4 Żółw narysował rysunek kota - taki jak poniżej. Wielkość boku kwadratu tworzącego buzię kota wynosi 150. Ile wynosi wysokość uszu kota?</p>  <p>Wybierz odpowiedź</p> <ul style="list-style-type: none"> <input type="radio"/> a. $150 \cdot \sqrt{2}$ <input type="radio"/> b. $150 \cdot 2$ <input type="radio"/> c. $150 \cdot 1,25$ <input type="radio"/> d. $150 / \sqrt{2}$ <p>Zatwierdź</p>
<p>Forum</p> <p>This collaborative task allows us to arrange discussion. The topic in this example was to find out different ways of drawing this picture.</p>	
<p>Assignment</p> <p>Assignments were usually similar to those one can find in miniLOGIA contest. The main aim was to write the procedure which would draw a picture shown in the example with conditions described in the task. There were procedures with and without parameters.</p>	
<p>Glossary</p> <p>Another collaborated task – student build their own dictionary containing different pictures drawn by logo procedures.</p>	
<p>Assignment Multimedia project</p> <p>During the course students prepared several multimedia projects in Imagine using object oriented programming.</p>	

Advantages of using e-learning Moodle platform

Using e-learning platform allows us to make our course materials available and organize effective communication in a group of participants. For the sake of the course character we prefer an asynchrony access. Assignments, quizzes and other modules allow us to verify students' progress in a systematic way and to give a quick feedback and appreciate students' achievements. Easy to use platform instruments allow an efficient course management and make it easier to analyse and report progress of each participant.

Putting emphasis on working online resulted in high activity of participants and requirement of methodical learning. Working on e-learning platform allows pupil not to waste their time on travelling. In addition, it was easier to save up some time for learning without strict hours, but of course there were deadlines for each task. Participating in the project was a good opportunity to create a collaborative community and to discuss problems with fellow classmates from others schools. It was a chance to interact with similar interests students and to exchange experience in forum discussions and presenting own work.

Conclusion

Our course was awarded in eLearning Awards 2006 (<http://elearningawards.eun.org>) organized by European Schoolnet. This is an annual event which identifies and rewards excellent practice in using ICT for learning across Europe. Programming in Logo using the Imagine Environment – Project for Primary Students has been classified in 100 top products.

We also got a feedback from the ICT teachers. It occurred that they were “jealous” of children's experience practices and they demanded a similar course for them. To meet their expectations we organized a workshop for them in September and October 2006. The next programming course was for children from villages and we hope it is not the end of logo activities on Moodle platform.

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- Logo competition for primary school portal <http://minilogia.oeiizk.waw.pl>