



49. Team Challenge

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Abstract

The three tournament TEAM Challenge is an Internet problem solving game for 10-14-year-old children to get acquainted with the different aspects of the countries of the European Union using Internet search, books, magazines found at home or in school libraries. The first tournament contained riddles about the culture, the history, the life and the famous people of the EU countries providing different aiding material: MS Word™ files, Flash™ games and Imagine™ projects. In the second tournament children had to collect different statistical information about a given country. In the third tournament the task was to make a presentation and a mind map web page about the country they have been assigned to.

The paper describes the different aspect of the game with respect to the used applications, as well as its implementation within the Colabs MINERVA project.

Introduction

TeaM Challenge 2003 (TeaM Kihívás2003) is an Internet problem solving game. The idea emerged from the Dudley Challenge Internet game, which is very popular indeed: (<http://www.edu.dudley.gov.uk/c2000>). But we chose a new approach in creating the structure and form of the game. Unlike the Dudley Challenge game, we did not provide resources, collected information sites, instead we have given the players more complex, natural and contextualised problems and urged them to search on the entire Internet and to use other printed or electronic resources as well found at home, in the library or gathered through email requests. As a result of this the task may have become larger, nevertheless it required much more creative solutions from the participants, and it also became more natural and life-like. Experience of TeaM Challenge2002 (TeaM Kihivas2002) played in 2002 (<http://kihivas.ini.hu>) has proved that 10-14-year-olds can successfully handle this kind of challenge, and solve the problems with much enjoyment and creativity (Kaszas, P., Rethey-Prikkel, B., 2003).

The goal of the game

As part of a national movement dedicated to the anniversary of John von Neumann, we aimed at introducing the countries of the European Union, their nations, culture, art, economy, and laws through serious but playful competitive tasks, using mainly the services provided by the Internet:

- By doing so, we wanted children to realise what it might mean to join the European Union and how it would affect our country.



- We wanted to show the most sensitive age-group (10-14 years old), just beginning to enter the information society, an effective and sensible way for using the world wide web, finding facts within the mass of information, enriching their subject knowledge, developing their problem solving skills and last but not least, encouraging students (and their teachers) to practice the craft of effective group-work, and organisation that is necessary for efficiency.
- We also wanted to provide an example for students (and their teachers) how the services provided by the Internet and application programs can contribute to developing creative learning and problem solving culture in the topics of school tasks.

In Hungary ICT related topics are more or less taught within (so called) informatics classes by specialised informatics teachers, which are more or less too technical or computer science oriented. Our aim was to give an example (not only for informatics teachers, but every teacher) how ICT can be used in solving a real problem, and how the knowledge gained from different subject areas, scientific fields, and cultural background can be connected through ICT tools in order to be able to solve a situated task, complex projects, and everyday problems.

“Informatics training should not only happen through getting to know software or hardware, but it also has to contain review of tools sufficient for any required task, giving guidance to the proper choice of tools to be used. It is the subject teacher who could most sufficiently apply the different aspects of ICT tools in the mirror of their subject topics. However at present informatics (computing technology) teachers are the only ones who know about the possibilities of ICT tools. As such, it is going to be their task in the next few years to approach the teachers of other subjects within their own schools, introducing to them the opportunities of ICT tools within a broad range of education. Also, teacher training colleges and universities have to prepare future teachers to be able to use new innovative tools configured for effective use within their own subject areas.”
(Turcsanyi Szabó, M, 1995, 1997)

We also considered the objectives of the Hungarian National Curriculum, touching several knowledge fields and supporting differential learning.

“Acquiring the different kinds of knowledge is actually a tool for setting up and developing the students' mental, self-teaching, communication and practical skills. The contents of a course should contain the fundamental results of culture related to humans, society, arts, nature, sciences, technology, selected and sorted according to the students' level of age and development. The level of elaboration, evaluation and complexity of relations can found the basics for the knowledge of students, forming their concept on the world, finding their way in their closer and wider environment.” (National Curriculum)



Our aim was to give tasks that require pre-planned searching and selecting amongst information the Internet provides and filtering information that feels relevant to the required solution. We wished to give practical problems that teach to use several computing tools, application programs, and also to transfer data in between the different applications.

“... The ability of using tools that become out of date quickly has to be separated from the knowledge of specific applications... We have to start out from the emerging problems..., first we have to deal with it as an organization problem, and only then can we choose the tools needed to solve certain subtasks...” (Szlavi, P, Zsakó, L, 1996)

Least but not last we aimed to develop children's creativity through the tasks.

The process of the game

The game consisted of three tournaments, each tournament lasting for four weeks. Participants between ages 10-14 year could apply to join in, independent of the type of school attended. The maximum number of team members was 5, and only one team could enter from each school. Naturally the entering team could involve teachers and other students with the school to help in solving the problems, moreover, they could ask for information from anybody through email. However, the access code provided for the competition had to be handled by the team members themselves, who organised the information retrieval process and made decisions on the emerging answers submitted.

98 teams have entered the game, and only the first 47 teams qualified for the second round by acquiring the point limits needed. The first 15 groups acquiring the most points adding up results of both tournaments participated in the third tournament.

First tournament

In the first tournament, there were 51 riddles about the culture, history, life and famous people of the EU countries. For these questions we gave the children different aiding material: MS Word™ files as answer templates that could be used for note taking during the search for answers, games prepared in Flash™ and Imagine™ as an alternative to give answers to problems. Each task was chosen to be interesting, important and provoking for the age-group, and also life-like, and in cases connected to school-subjects.

We also grouped the Imagine microworlds, other aiding games made with Flash, other interesting games on the topic found on the Internet, animations and ideas all accessible in the form of a gallery on the page. Here they could be accessed and used not only as part of tasks but also for the love of the game itself.

We have noticed that there were plenty of users accessing our game site that were not registered groups, but players who challenged themselves with the game, but for some reason did not wish to participate in the competition itself. A lot of teachers indicated their wish to do so, since they found the riddles very motivating and educational, but they could not afford the time needed to go through the three tournaments.






The teams had to fill in a form for each answer. By clicking on the SUBMIT button the answers were saved into a database, where the reviewers rated their correctness. All data related to each team and also the actual points were stored in a database. The webpage of the game was generated from this database as well each time. That is how it was possible that



after signing in, each team saw its own answers and those not signed in could only look at the questions. This way it could be easily identified who has given answers to which questions!

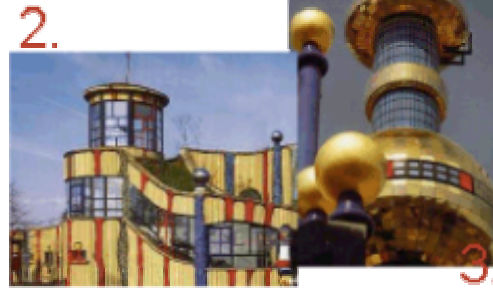
Some examples are shown for the type of questions given:

In Riddle No 18 (Figure 1) the task was first to understand the main points of the story and sketch the frame of events to find out why and what causes the problem. When the problem is identified one has to think about possible reasons for the problem to arise. The clues of the towns have to be investigated by finding the indicated places on maps (preferably on the internet) as well as the peculiarities of that region i.e. time zones that would provide the solution to the problem. In this combination, a "normal" logical problem becomes an Internet problem or at least a problem that could be effectively solved if proper searching techniques and sites are used on the Internet to save time.

<p>1. forduló 18. kérdés </p>	<p>1. forduló 1. kérdés   </p>
<p>„Tracking the lost time.” <i>Marcel Proust</i></p> <p>Pedro had a hard day, waking up with a left leg, forgetting his watch at home, he feels his brain is out of order. Nevertheless, he had to go to work and even attend an important meeting early morning. He was just about to return to their office at Badajoz to tell his boss about the meeting, but was told that he just left. The boss left a message on his door: <i>“I shall have lunch with my wife at the office in Elvas. I shall stay only 30 minutes and shall return.”</i></p> <p>The bosses door was left open slightly, so Pedro could hear that the clock inside clinked one. He sat down at his own desk and was listening to hear when the boss returned. After half an hour he heard the clock clinking one again. After another half an hour the clock clinked one again and still the boss was not back. Pedro became very nervous, but waited another half an hour, when the phone rang suddenly. It was the boss on the line, who said that he is now starting his way back. Pedro was shocked to hear the voice of the clock in the Elvas office clink one. <i>How can this be possible?</i></p> <p>Pedro knew that in both offices the clocks clink one at every half an hour and clink the number of hours at every full hour. He also knew that lunch-time starts at noon sharp at both offices and that there is only 30 minutes travel time between the two offices. Pedro tried to use his weary mind in vain to remember when exactly did he himself return to the Badajoz office and so when would the boss be back then? <i>Could you help Pedro?</i></p>	<p>Which building can be seen on the cut-up picture? (It is interesting to know that the architect is a famous painter as well.) Whose work can be seen in the picture? As a solution give the full name of the artist, alias of the artist, year of the artist's birth and death, and in which city can the building in the first picture be found, and when was it built.</p>  <p>Find the places of the picture pieces. You can choose from two methods:</p> <ol style="list-style-type: none"> 1. With the puzzle program opening from the header of the question you can make an imprint on the Clipboard, and you have to save it by copying it into a picture editor program. 2. By assembling the pieces using a picture editor and saving the picture. You can download the pieces in the kirako.zip file from the header of the question. <p>In both cases the completed JPG file has to be attached to the answer-sheet.</p>



Question 18



As a help, we attach the photo of two of the artists other works. Tell us also what functions do these have, in which cities can they be found."

Question 1

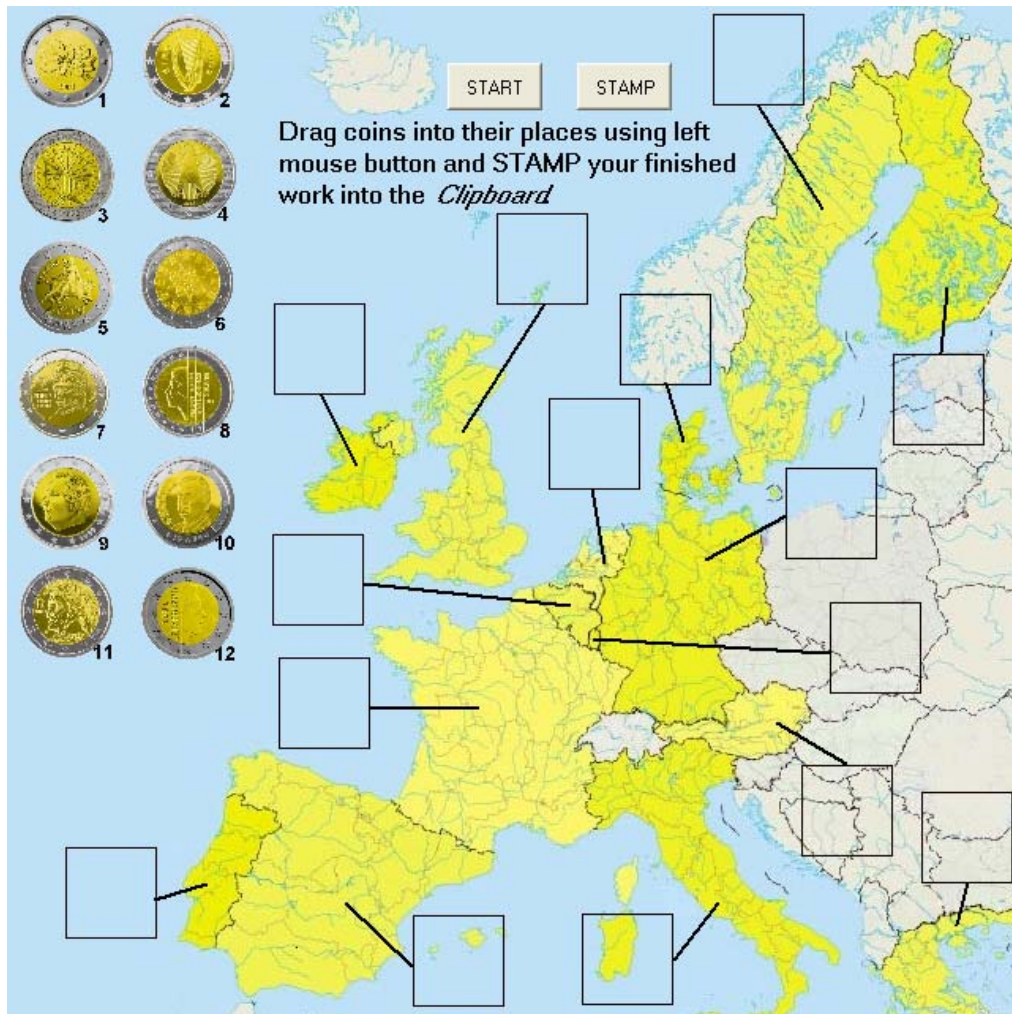
In Riddle No 1 (Figure 2) the task was to solve the picture puzzle. In order to help, we provided more than one possibility:

- the pieces of the picture could be downloaded in the form of a zip file
- The picture could be assembled with the help of an Imagine microworld as well



Imagine puzzle microworld to solve Question No 1.

In this microworld the pieces could be dragged into the small rectangle. By pressing the STAMP button the contents of the rectangle was saved to the Clipboard. This could then be inserted into a picture editor of the player's choice, saved as JPG and finally uploaded to the server with the help of the answer-sheets.



Imagine microworld to solve Question No. 11

There were questions about the European Union as well. Some also offered the use of an Imagine microworld to produce the solutions, like the coins puzzle (Figure 4.). Those who did not use the given microworld to place the coins in the boxes next to the appropriate countries, could pair the pictures of the coins on a numbered montage with the name of the countries on the answer-sheet.

Out of 43 teams who sent an answer to this question 22 have sent the solution created using the Imagine microworld. This shows that a great proportion of children took advantage of solving the tasks by using the games provided by us. When asking those that sent answers using the alternative method, we were told that teachers could not install the plug-in due to incompatibility with their operating systems.

Second tournament

In the second tournament children had to collect different statistical information about the country assigned to each team selected by a draw. The answers for these questions could be found primarily by searching on the World Wide Web, secondarily in books, magazines or by using home or public libraries. The task was to collect very different data and important information. For example: the address of the Hungarian embassy in the given country, or the geographical and statistic data of the country. Practical information had to be given as well,



like speed limits on the roads or searching for a few basic words in the language of the given country. Example:

2. forduló 9. kérdés

You may have heard about Frigyes Karinthy's warning relating to the "end-product" of translations and mistranslations back and forth. This he explained in his dissertation titled *Műfordítás* (artistic translation). It is worth to read: what becomes of the first verse of Endre Ady's poem, The poet of Hortobágy:

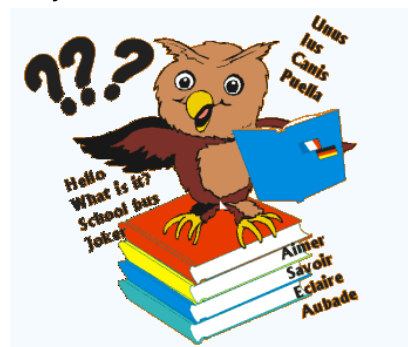
*"I have come from the banks of Ganges
Where I was daydreaming at the light of noon,
My heart is a great blue-bell
And fine trembling: my fortitude."*

as the result of the fourth "mistranslation":

*"In the Herz salami
salt is much thicker
then in other similar creatures
believe, oh, sweet reader!"*

We don't ask you to create such translations now. We would like you to translate the words and expressions below to the language spoken in your country:

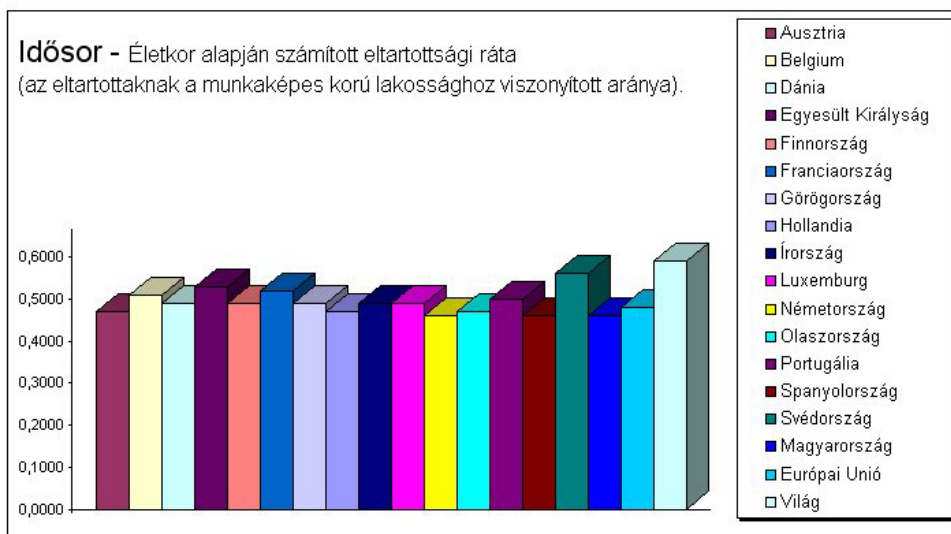
*Thank you, Dictionary, Good morning, Good day, Good evening, Good Bye,
Cheerio, Bon Appetit, How are you? I'm fine thanks, yes, no, Hungary,
Hungarian, nationality, I love you, friend, sweets*



Question No 9

However the tasks of the second round were not limited only for collecting data, we have given bonus tasks as well. Answering the bonus tasks was not compulsory, but by solving them a considerable number of points could be gained. These tasks contained a small statistical examination, analysing and interpreting collected data. There were tasks, where they had to make graphs using data accessible on the Internet, and there were others, where the task was to examine the given graphs and read and compare data from them. Also there was a task about the European Union concerning the changes following the possible joining of which the teams had to write a short essay.

In the first picture there is a graph with the help of which we asked information on certain tendencies. This contained information on age dependency rate and we asked players to analyse and interpret them through different helping questions and given viewpoints. This task was set at a higher level than the aimed target group. Our intention in giving such difficult problems was to motivate children to try and find answers to questions they have not yet encountered and to urge their helpers to aid them in understanding the main issues involved and able them to compose an understanding.



A kép valójában 2 különböző betűből (karakterből) állt, tehát valahogy így nézett ki:

Most pedig így:

AABBAAAABBAA
 AAABBAABBA
 AAAABBBBAAAA
 AAAAABBAAAAA
 AAAABBBBAAAA
 AAABBAABBA
 AABBAAAABBAA

CDCD
 EFGE
 EGFE
 ECDE
 EGFE
 EFGE
 CDCD

The task that can be seen on the second picture was a decoding task. We have encoded a picture file drawn with letters as can be seen in the example, and we encouraged everybody to try to find the original picture.

Third tournament

In the third, final tournament the task for the teams was to create the mind map of a given country in HTML pages with hyperlinks as a synthesis of the data collected during the first two rounds. The opening page should contain a visual mind map of the assigned country that can be internationally understood. It also has to mirror the typical atmosphere of the country. The following pages should elaborate on the different topics chosen with the exact indication of the sources of the data used. To these a short (a maximum of 10 pages) PowerPoint presentation had to be attached that offers a program for a 5-day trip to the country. At the end everything had to be uploaded to the server of the competition.

In this tournament we expected real self-made, creative solutions from the participants. We tried to give them as much freedom as necessary to allow creativity and personality to evolve and represent. This round was not awarded by points, but the works were rated by an



independent jury. Beside the viewpoints of the content the jury also rated creativity and overall image.

The evaluation of the game

The pedagogical goal was to show children the way of working on a massive project together with their mates which improve their cooperating ability using different materials, methods and computer applications for developing their problem-centric thinking and helping their constructive learning.

With the Kihívás2003 (Challenge2003) game we would like to provide ideas to informatics teachers as well as other teachers in schools how they can involve ICT in the process of attaining subjects, how can topics of different sciences be joined in a problem-centered way into one bigger playful task and how effective this is in the process of teaching and learning.

How can we transmit knowledge, encourage learning independently from lessons and subjects by inspiring the students' natural curiosity and longing for learning. How can we inspire active, self-sufficient, inquiring, constructive learning, encourage self-sufficient or team work among students.

We aimed to create a game that helps learning during processing a life-like, important problem. A game that not necessarily sets the good achievement in a school situation before them but a problem they have to solve freely, without getting any guidance in a project so big for the carrying out of which team work and endurance is needed.

We experienced from the achievement of the teams and feedbacks that wherever this succeeds the game gives much enjoyment and a great amount of new skills and information to team members as well as to teachers who help them.

We think that the most important advantage of the Kihívás2003 (Challenge2003) game is that during solving the tasks children obtain problem solving techniques, knowledge needed for handling application programs (Word, PowerPoint, web-page making), searching strategies, their communication skills and logistic skills are developing without them knowing about it. They don't even notice how complex are the algorithms that are needed to solve these problems and such they may be using several application programs for solving one task the usage of which caused problems even in themselves earlier.

We thought it was very important to have a spectacular playful approach in which Imagine as an authoring tool was a great help because the spectacular microworlds ensured a really enjoyable game and they also helped children in solving the tasks. Since we have experienced from the incoming answers that in half of the cases the teams used this option therefore we think that we gave useful help to teams.

It is also an important experience, according to the feedback from teachers that children have got to like and learned to use voluntarily, asking the teacher, application programs that are generally acquired very unenthusiastically and only with great difficulty by their peers.

Colabs project

The "Colabs" MINERVA project aims to develop an online collaborative learning environment (<http://matchsz.inf.elte.hu/Colabs/>), which contains Imagine course materials, exercises, tests, asynchronous and synchronous co-laboratories, forums, mailing possibilities,



and many more different tools for constructivist learning through collaboration. Among others, the Hungarian team promised to build collaboratories, that is internet based microworlds that promote sharing and learning collaboratively. The Imagine microworlds presented here (and many others developed) provide suitable frames for a variety of educational microworlds. The Colabs network provides an Imagine course by which one can learn how to develop such microworlds and activities within the network invoke their configuration into different domains, e.g. in case of the coin microworld:

All collaboratories provide asynchronous collaboration in the form of allowing creative modifications to the given microworlds, thus providing further challenging puzzles for others to solve.

“Did you know that the 1 Euro coins are not the same? Although one can pay with any version of the coins in all European Union countries, each country produced its own version. Try to figure out which coins belong to which country and save your STAMP-ed version from the Clipboard into JPG format and upload the file into your own portfolio!”

You can even create another map with other types of coins to produce a puzzle for others to solve. You can create the coins and map using Logomotion or any other image editor as JPG files. Submit your coins or full Imagine puzzle project into the [Forum](#). Try out the versions submitted by others and upload your stamped solutions into your own portfolio.”

Our presentation at Eurologo shall illustrate the main features of the TeaM Challenge game and our experiences gained about the evaluation process, and also illustrate how the used microworlds were implemented into the Colabs MINERVA project.

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