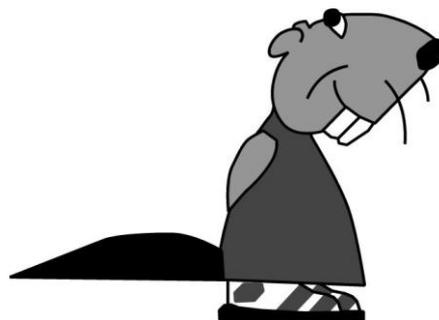


IMPLEMENTATION OF INFORMATICS CONTEST BEBRAS IN CZECHIA AND SLOVAKIA

Peter Tomcsányi, Jiří Vaníček

Abstract: In 2008, an informatics contest called iBobor (Slovakia) and Bobřík informatiky (Czech Republic) for lower-secondary and upper-secondary school students was held in both countries for the first time. It proposes to popularise school informatics and computer science topics in curricula of the school subject of information technology. While the ideological principle of this international contest remains as it was assumed from a Lithuanian contest called Bebras, the motivation, the publicity, and the organization of the national round and its course was realized in different ways.



The article introduces the contest and compares the situation in Czechia and Slovakia from the point of view of motivation, organization, publicity, realization, and number and structure of participating students.

Key words: informatics education, lower and upper secondary school, contest, iBobor, Bobřík informatiky.

1 OVERVIEW

There has never been a contest similar to the one of Mathematical Kangaroo which would offer not only the possibility to compete but to popularise school informatics as at school as among students – fans of computing. The main goal of the new contest is to show students and their teachers the whole rank of informatics which is often reduced to digital literacy and to show them which knowledge and skills are required from IT specialists [1]. Another aim is to turn attention to the basis of informatics as science so that schools would be able to form students prepared to IT university studies having an undistorted idea of „computer science studies“.

2 IMPLEMENTATION OF THE CONTEST IN SLOVAKIA AND CZECHIA

Common character of the contest in both countries was due to the acceptance of an international standard valid for 10 European countries with a common methodological centre that set up non-committal rules and recommended a set of problems [2]. The problems were composed of problems taken out of the common database as well as from each country's own resources. In the contest, students filled in an online test on a web browser. The test took 40 minutes and contained 15 tasks with 4 answers to be selected. In Slovakia, several problems allowed solving by working in an interactive program which was a part of setting (see more in [3]). Participants were split into age categories.

Typical age	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19
Class	5.	6.	7.	8.	9.	I.	II.	III.	IV.
Czech republic	Benjamin			Junior			Senior		
Slovakia	Benjamíni		Kadeti		Junióri		Senióri		

Table 1 – comparison of age categories in both countries (Arabic numerals represent lower-secondary school years, Roman numerals upper-secondary school years, column IV. means the leaving year)

Even point classification was different though the principle of linear scale with handicap was kept (adequate number of points was subtracted for every wrong answer whereas no point was taken for avoiding answering). Nonzero initial number of points affected avoiding of degrading negative total score. In Czechia, points were set so that total score was an integer, while in Slovakia, a smaller point difference between problems of different difficulty was the priority.

In both national versions, problems were split into three groups with different number of points according to their difficulty. Problems and answers were mixed individually for every contestant in both countries. In Slovakia, the order of increasing difficulty of problems was kept in contrary to Czechia, where problems were mixed randomly but contestants were informed about the difficulty of each problem.

Testing period was limited by reason of balancing two contradictory tendencies, to allow as many students as possible to participate and be most objective as the organizers were afraid of undesirable sharing hints among the contestants in the following turns. The testing period was set for 3 hours in Slovakia and 5 hours in Czechia, an extra testing day was reserved for each category.

3 COMPARISON OF ORGANISATION OF BOTH NATIONAL VERSIONS

Last school year, 9317 contestants took part in the 2nd volume of iBobor contest (more statistic data is available in [4]), 4069 contestants took part in the 1st volume of Bobřík informatiky. In the next paragraphs, we are going to compare the experience and different approaches in organization of both national versions. Every school was represented by a „school co-ordinator“ which registered the school and prepared the contest in terms of school (PC labs reservation, schedule, propaganda and check-up).

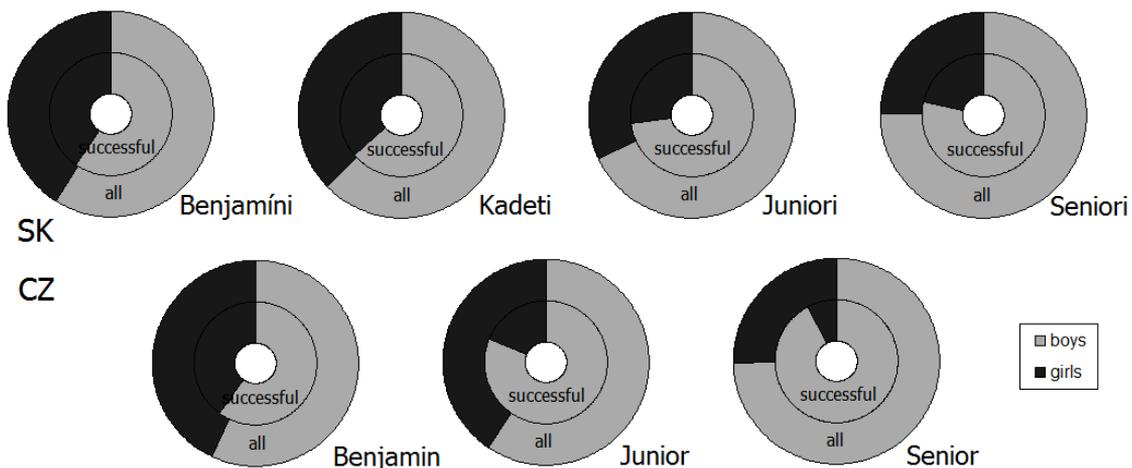
In Slovakia, each student was pre-registered by a teacher via a web form, and each participant was given a personal code in advance. In Czechia, participants registered themselves at the beginning of the test using a secret entering school code. When the testing period was over, Czech school co-ordinator had to check all school participants and mark invalid contestants (as some students tried to do the test twice, some teachers or even schoolmasters tried to do the test as well). After that a jury fixed a final rank of participants. Both national versions ensured the possibility to continue the test in-process in case of technical accident (e. g. web browser window had been closed).

One of the advantages of pre-registration was preventing multiple registration, as well as smaller number of wrongly written students' names and the idea of number of participants, while the other version was not able to provide the committees with such information (it was substituted by only inaccurate estimates made by co-ordinators in). Registration at the beginning of the test was simple and made the test accessible for teachers which could contribute to the contest publicity. On the other hand, total testing time extended due to the necessity of filling in registration forms by students. It is interesting that none of the ways of participants check-in did not prevent servers from overloading in one of the contest categories.

Smooth course of testing depended on school co-ordinators first of all, for which they deserve great thanks as they mostly remain anonymous. In case of pre-registration, coordinators were in charge of inserting students' names into database. In case of in-process registration, list of participants had to be checked in order to provide feedback to organizing committees as soon as possible. A big disadvantage of in-process registration appeared the fact that students were not able or reluctant to write their names correctly which caused problems when printing certificates and preparing the table of glory. Often they did not respect accents and capital

letters or they were not uniform in class name, which resulted in class sorting not providing correct output.

Every contestant was informed about his or her score immediately after finishing the test. The ranking in the corresponding category was announced once the jury has declared the end of contest. The table of the best contestants in every category was disclosed and the school co-ordinators were able to get results of their students, which they could use for the contest evaluation on the school level. Total results of all participants were not disclosed because the contest aimed to be motivating and the organizers were aware of the risk of school comparing and disclosing unsuccessful participants.



Graph 1 – Gender comparison of contenders in both countries. The outer circle shows all contenders, the inner circle shows successful contenders (who gained more than half of maximum points).

Representation and fruitfulness of girls in the rank list is illustrated in the Graph No. 1. There it is visible that the ratio of participating and successful girls is comparable to boys in Benjamins categories but it decreases with age. A very interesting fact is that fruitfulness falls rapidly among Czech girls. Because students in category Benjamin have hardly not been taught in this subject it seems that setting of school information technology is more disposed to girls in Slovakia than in Czechia.

4 FEEDBACK

The contest feedback was obtained from school co-ordinators via e-mail or discussion groups. In Slovakia, some enquiries were realized in which 52 teachers and 126 students participated. Their reactions could be divided into the following:

- comments on organization, calling attention to mistakes
- comments to particular problems and their settings
- attitudes to the whole contest

Most comments in Czechia were related to the testing period. Some teachers suggested extension of the period up to the afternoon when a lot of informatics lessons run, some of them suggested to extend the contest in each category into two days because schools were not able to satisfy all students. Some of the reactions agreed with the organizers' point of risking possible devaluation of the contest. In Slovakia, the suggestions to shift testing to the afternoon were quite rare, 76 % of informants answered that the current testing period from 10:00 to 13:00 o'clock is suitable.

Comments to particular problems came usually after the test and related to problem setting. Misunderstanding of a problem occurred often (one of the teachers required approving both answers 1000 as well as 1024 correct in the problem „How many kilobytes is 1 megabyte?“

his reason was the prefix kilo- meaning 1000). Sometimes it was a request for keeping the terminology as exact as possible which led to making the problem easier though (it was in the problem of finding out the size of computer memory from a sale offer, some students required the term „main memory“).

Attitudes to the whole contest were positive almost unanimously, teachers appreciated this contest for various reasons:

- students worked and were concentrated during the lessons
- a competitive spirit was awoken in students
- retrieved focus on the subject school, propagation of informatics
- online version of the contest is attractive and relatively new to education
- problems are not aimed only to handling office applications
- students were impressed, they discussed the solutions of the problems

Backwashes were related to children's disappointment when the contest was postponed in one category for another day due to technical reasons. There were some opinions considering the contest too easy or that the attendance was motivated by having the chance to avoid regular classes.

We recorded (either positive or negative) reactions of teachers that problems did not correspond to the current school information technology curricula. One teacher wrote that „this Beaver of informatics should be renamed to Beaver of logics“. This shows that teachers noticed that problems are targeted not to common current lesson content. It arises a question whether it is a trigger for any self-reflection of what they actually teach in their lessons.

5 CONCLUSION

The contest reception and the attendance in it motivates the organizers to continue the contest and organise another volumes in the next years. The contest could become similarly popularizing and cultural activity for ordinary gifted students as Mathematical or Science Kangaroo still are. Moreover, in few years it will be interesting to see whether the attendance in the contest or teachers' thinking about the problems had any impact to changes of educational content or teaching approach especially in cases where teachers perceive school informatics as an introduction to user's work with a computer through handling several basic applications.

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