The National Computer Olympiads and the IOI Participation in Finland

Jari KOIVISTO

School Principal, LUMO Upper Secondary School
Urpiaisentie 14, FIN-01450 Vantaa, Finland e-mail: jari.koivisto@vantaa.fi

Abstract. This paper describes the concise history of Finnish National Computer Olympiad and the participation in the IOI. It is entirely based on the author's own experience because he has been involved in running or participating as a team leader both of the olympiads since 1988.

Key words: Finish olympiads, teaching computer science, IOI.

1. The National Olympiads

The first national computer olympiad in Finland was organized in 1988 during the time when the first initiatives to accept IT and later ICT as a subject appeared in education. At the same time organized work to create regional curriculum documents in ICT started. The obvious reason for the increased interest in ICT in society was the added value accumulating in business and public administration when using the ICT as a productivity tool. The first really useful software in educational administration appeared at the same time.

The first trials to use computers in education took place in the 70s when the schools started to buy the Swedish ABC-80 computers. In the 80s there were a lot of computers in the Finnish schools mainly from Nokia but there was no coherent way to teach computer science as a subject and only a very few trials to create educational software. Some teacher training to teach programming was organized in the beginning of the 90s but this initiative did not survive the 1993 curriculum reform.

The basic idea for the first national olympiads in computer science was to test general knowledge about computers and their use in the society. In addition there were some tasks to write simple pieces of software. The programming language mainly used in schools was Basic and fortunately some good environments to write software in Pascal were also available. Turbo Pascal afterwards became a popular programming language in Finnish schools.

The idea to test general knowledge in the national computer olympiad has survived to present time and it is still producing 40% of the final count of the points whereas solving the programming tasks produces 60%. The reason is that in Finland the whole process from the national olympiads to the IOI is financed as a part of the general education in Finland. General knowledge about ICT as one of the most important productivity tools

is highly appreciated in Finland. By emphasizing general knowledge from ICT, the vast spectrum of possibilities to use the ICT in the society is acknowledged.

Previously the national computer olympiad took place in three steps:

1. The first step was the primary round in all the Finnish lower and upper secondary schools with separate tasks for both in September and teachers doing the evaluation. Participation was about 4000 students.
2. A qualifying round in November for the best competitors in each school, and the national organizers doing the evaluation. Participation was about 200 students.
3. The final round in January the following year in Helsinki for 20 students from both series a big national bank as a sponsor.

2. Participation in the IOI

In 1993 Finland started its participation in the IOI. Gradually the programming tasks in the national competition became more demanding in order to better prepare the students for the IOI. At the same time the national competition lost the bank as a sponsor, and the possibilities to organize a three-step competition vanished. The global recession took its toll.

Since 1997 the competition has taken place in two steps. First the on-line competition takes place in November with two weeks answering time and then the final in Helsinki in January next year. The number of participating students has reduced below 100 but on the other hand all the participants are expected to be able to solve difficult algorithmic tasks. It is a pity that because of lack of resources it is not possible to organize the first round in schools, but it has to be accepted as a reality.

The programming tasks in the two-step competition are normally kept at the same difficulty level as in the IOI. To encourage the students at least to try to write something and also to increase the number of participants some icebreaker tasks are introduced. The winners have generally done programming for many years before the competition but their success is still fully dependent on their own initiative because te programming studies at Finnish schools have in practice completely disappeared in the wake of several national curriculum reforms.

Training for the Baltic IOI and the main IOI begins immediately after the national olympiad. The training is organized on-line on the Internet and only a few days face-to-face training is provided. The purpose of the training is to strengthen the algorithmic skills of the participants and enable them to analyze the tasks in order to find a good starting point.

The students having participated in the IOI have normally continued their academic career at the Finnish universities mostly studying technology or computer science generally ending their studies to a doctoral degree. Before a doctoral degree only a very few students have decided to continue their studies at a foreign university but naturally a part of their post doc studies are almost always done in foreign universities.

The IOI is considered in Finland as one of the international science olympiads which in practice means that most of the funding is in the government educational budget.

The reasonable success in those competitions guarantees that the procedure to organize the Finnish participation in those competitions remains quite steady. This of course is very dependent on the estimated added value of the competitions in the Finnish education. The organizers of the national science competitions are very aware of that fact.

J. Koivisto has been a member of the Finnish National Computer Olympiad organizing committee and occasionally chairing the committee since 1988. His first IOI was in Haninge, Sweden in 1994 as a deputy team leader. In 1995–1997 he participated as the Finnish team leader. In 1998–2004 he was a member of the IC. In 2001–2002 he was the president of the IOI organizing the IOI2001 in Tampere, Finland being at the same time the chair of the IC. In 2006–2008 he was the ED of the IOI.