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**MY Camp: Millennium Youth Camp for young researchers in Finland**

**I. Introduction**

**1. The concept of “camp”; international camping practice**

As summer approaches, the various organisations, institutions of education, religious communities, sports associations of many countries come up with their offer of camping opportunities for young people. By definition, a “camp” is usually a series of leisure events lasting for several days, co-ordinated by an adult supervisor, targeting a specific range of participants (usually children or teenagers), accompanied by some special training (thematic camp) or without that. A distinction is made between residential and non-residential camps. In the latter, children go home every day, but their meals and programmes for the day are arranged by the camp leaders.

In the beginning of the 21<sup>st</sup> century, young people can choose from a wide array of camps in every country to acquire artistic, religious, sports or scientific knowledge/skills. According to the relevant statistics of the American Camp Association, in the US alone, the almost 10 million camper children can choose from some 12 000 camp offers annually (American Camp Association, 2011). Parents find it hard to choose from this excessive supply the camp which will offer their children the most, at a good price. The situation of gifted students is especially difficult: apart from offering leisure activities, the camp is expected to boost their motivation and their commitment to a chosen subject or field of knowledge, and help expand their contact network with other young persons interested in the same topics.

The US comes up with a record amount of camping offers, but quality supply in this area has kept expanding also in Europe. The most popular options are those offered by the countries which have been in the vanguard of science and technology recently: in Germany, the XLAB camp on the campus of Georg August University, Göttingen; in Croatia, the annual Summer School of Science organised in the small town of Visnjan on the Istria Peninsula, and the Millennium Youth Camp in Finland, which offers out-of-school enrichment programmes to talented secondary school pupils on topics similar to those of the previous two schools.

## **2. Educational achievements and forms of talent support in Finland**

Its economic and educational policy results achieved in the past one-and-a-half decade have directed the attention of the world to Finland. According to the PISA surveys<sup>1</sup> of the OECD<sup>2</sup>, an organisation which currently gathers 34 advanced countries, the Finnish 15-year-old produce outstanding results in the scientific as well as the humanities fields. Furthermore, the Finnish school system has excellent results in talent support and in bridging education as well. The country operates several complex talent support programmes, and close co-operation between the universities and the secondary schools makes it possible for students aged 16-19 to accelerate, to do independent research work (of course under the guidance of an expert), and to complete university courses in their upper-secondary-school years (Hornyák, 2011).

Thematic summer camps are a key component of the complex talent support programmes. Camps give an opportunity to deepen and expand knowledge, and to build contacts between the talented pupils.

## **3. Traditions of camping in Finland**

In Finland, the more extensive spread of camps dates from the period after World War II. At that time, Finnish teachers proclaimed wholeheartedly that industrialisation and the concurrent fast urbanisation were not good for the development of children. They considered it important that children should have first-hand experience of the values associated with living in the countryside, as in the period before the world war, to become honourable citizens.

After World War II, new traditions appeared on the initiative of the local churches: for example, confirmation camps were organised for the children as a way to combat the secularisation of society. This initiative was particularly successful, so much so that significant numbers of the 13-16 year-old go to such camps to this day.

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<sup>1</sup>Program for International Student Assessment investigating the mathematics, natural sciences, problem-solving and reading skills of students.

<sup>2</sup> Organization of Economic Co-operation and Development

But children can choose also from the many non-religious options; Prometheus Camp<sup>3</sup> is one of them. The talent support camps being organised nowadays are increasingly popular, and not only among the youth of this Nordic country, but also among foreign students. Many Finnish NGOs organise camps in Finland for children of all ages. The most active among them are the scouts, the sports associations and the Evangelical Church. Finland has grown into a European centre of science and technology, in the vanguard of educational attainments, and it plays a lead role also in the organisation of extracurricular programmes for students. The National Board of Education has organised space research and physics camps for 16 years, and the LUMA centre provides research opportunities for teenagers familiar with mathematics and the natural sciences. And it is worth mentioning a programme launched only two years ago, which offers an international camping opportunity to students coming from all over the world, selected by the organisers of the Millennium Youth Camp.

## **II. The Millennium Youth Camp**

### **1. Start of the Camp and its organisers**

With the co-operation of several institutions of education, NGOs and ministries, a new initiative was launched in Finland in 2010 that will hopefully prove to be long-lasting. Technology Academy Finland, LUMA centre<sup>4</sup>, the Ministry of Education and the Centre for School Clubs created a special camping opportunity for talented young persons. Besides the organisations mentioned already, many other scientific organisations, ministries, universities and the representatives of the corporate sector also take part in the project.<sup>5</sup> MY Camp targets

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<sup>3</sup> Non-religious camp organised for young persons aged 14-15 by Prometheus Camp Association founded in 1990. On the occasion of open debates, discussions and drama sessions, the youth consider ideological and ethic questions.

<sup>4</sup> LUMA centre was founded in 2003 in close co-operation by ten institutions including also representatives of the industrial sector besides the institutions of education. Its primary objective was to popularise and support the tuition/learning of natural sciences, mathematics and informatics, and to build networks of schools, universities and partner institutions. The Centre organises seminars, workshops and summer courses for teachers, and club sessions and international camps for the youth throughout the year.

<sup>5</sup> Other co-operating partners: strategic large companies of the country (Nokia, Kemira, Vaisala, Fortum, UPM, ST1), Helsinki University, Aalto University, National Board of Education, Heureka Centre, Ministry of Education and Culture, Finnish Academy, Association of Biology and Geography Teachers in Finland (BMOL), Association of Mathematics and Science Teachers in Finland (MAOL), Chemical Industry Federation of Finland, Economic Information Office (TAT), Federation of Finnish Technology Industries, Finnish Cultural Foundation, Ministry for Foreign Affairs of Finland, Technology Industries of Finland Centennial Foundation.

the age group of secondary school students, i.e. the 16-19-year old, committed to science and technology. Its base is in Kiljava, located near the capital, but the programmes of the Camp take place at many locations, from the leading Finnish universities through the research centres of mammoth companies to the famous sights of the capital.

### **1.1. Goal of the Camp**

The camp has many goals, that is the reason why it is so extensively supported by institutions of science as well as the public sector. The organisers want to provide young people with similar interests and advanced skills in science and technology programmes which give them an opportunity for further development, for preserving their motivation, deepening their knowledge and getting to know their coevals coming from other cultures. Getting acquainted with science is a priority target, since it is well-known that the age group of secondary-school students is the most receptive to advanced knowledge, and life-long commitment to specific fields of science actually develops in these years.

In the framework of the varied programmes, MY Campers obtain information on the further education options from each other. Many of the Camp participants prepare to go to the most prestigious universities of the world such as Harvard or Cambridge. The Camp makes no secret of its ambition to introduce to the participants the Finnish universities and employment options; to sketch work opportunities for the professionals of the future, and to recruit talented young people from all over the world. Another key objective is to encourage the youth to seek answers to the most urgent questions of their society. Therefore, MY Campers work on issues to which science is expected to give a solution. This is how climate change and the use of the renewable sources of energy came to be included in the list of the project topics (see Section 2.4.3).

### **1.2. Participants and selection**

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One of the most recent initiatives is the Millennium Youth Camp (MYC) organised every summer. MYC was designed primarily to identify young talents and to help them launch their career. During the one-week camp, students meet researchers and scientists; they go to presentations and workshops, and they make projects in team work. The first camp was organised in June 2010, and out of almost 1000 applicants, 30 talented young students from 14 countries took part at the programmes free of charge

The selection process starts at the end of the year before the camp. The call for applications by talented and motivated young persons from all over the world is announced in October. In 2010, 995 applications were received from 62 countries of the world, and their number is increasing. In 2011, the organisers could choose from among almost 1,500 applicants taking part in the two rounds of selection. In 2010, the 30 participants came from 11 countries; one third of them from Finland. The proportion of boys and girls was by and large equal. In 2011, the 30 lucky young persons aged 16-19 selected from the 1,452 applicants were the citizens of 22 countries. The number of applicants grew by 50%, and all five continents were represented: in 2011, besides the Finns, the camp had participants from Austria, Bulgaria, Croatia, Ghana, Indonesia, Ireland, Japan, Kazakhstan, Mexico, Nepal, New-Zealand, Nicaragua, Romania, Russia, Serbia, Slovenia, Thailand, Uganda, Ukraine and the US. The camp of 2012 had places for 13 boys and 17 girls and, similarly to the previous years, the 30 students came from 22 different countries. The language of the camp is English, and the participants are expected to have advanced written and oral skills in that language. Fluency in English is a precondition of the efficient co-operation of those who work on a common project.

Talented students undergo two rounds of selection. In the first round, applicants are to demonstrate their interest in and commitment to mathematics and the natural sciences, and their foreign language skills. 100 young people remain in the contest after the first round. The list of their names is published by the organisers by early February. The second round is more complex: the applicants make project plans according to the specified guidelines. The research topics of the camp workgroups are announced at the time of the call itself, so people can orient themselves according to their fields of interest. Many project plans are so well developed that they are suitable for implementation without alteration. The applicants often prepare works illustrated with creative elements (video, sound effects, images). The results of the first round are released in February, and the final list of names crystallises by the middle of March.

### **1.2.1. Research outputs of MY Campers**

The organisers and mentors of the camp focus on the social sensitivity, motivation and commitment to the research topic of students coming from all over the world. Johannes Posti, staff member of the Department of Chemistry of Helsinki University conducted a research

survey among the campers and presented the first results at the ESERA (European Science Education Research Association) Conference held in September 2011 in Lyon, France.

The applicants to the camp of 2010 completed a questionnaire querying their commitment to their chosen field of research, their social sensitivity and the reason why they applied. They showed above-average interest in the sciences and expressed their concerns regarding the environmental topics. As could be expected, there were notable differences in the opinions of male and female students, and also among students coming from diverse countries concerning certain topics. Europeans were less interested in the economic, and more in the social issues. Students from Oceania were most interested in travelling to Finland, whereas those from Europe were the least motivated in going to this Nordic country. The Finns emphasised their interest in their field of research, but they showed less interest in the economic and social aspects.

### **1.3. Costs of the Camp**

The Camp is highly attractive to students since all costs (accommodation, travel, meals) are covered by the organisers, which makes this quality professional programme accessible also for the talented, but socially underprivileged youth. Contrary to the practice of other European countries, higher education in Finland is free of charge also for foreign students. This is the reason why the organisers compile a rich and complex program free of charge for young people on the brink of university studies. This is feasible thanks to the extensive co-operation of the universities, the public sector and the strategic large companies of the country. Co-operation established in the interest of creating the Millennium Youth Camp is exemplary indeed.

## **2. Programmes and didactic methods of the Camp**

The programme of the Camp has three pillars: science, technology and nature. The organisers compile the programme so as to have recreational programmes in adequate quantity and quality beyond the lectures and professional events. Apart from project work, the one-week stay at the Camp offers many interesting and useful enrichment programmes and experiences. This colourful array gives the students an opportunity to get acquainted with the culture and natural values of this Nordic country.

During the period of time spent at the Camp, the youth get to know the capital, Helsinki University, Aalto University and the activity of the co-operating research centres and companies. Thus they do not only learn at conventional school lessons, but gain first-hand information from scientists and researchers on the latest results and innovations.

## 2.1. The programme of the week

The crucial things for the youth coming from different cultures and backgrounds is to get acquainted with each other and to form a good team which creates the conditions of efficient collective work as soon as possible. For these reasons, the organisers arrange informal sports and leisure activities on Day 1.

The official programme starts on the evening of the first day, when students introduce each other and Finland from an aspect concerning their topic to be processed during the Camp in the form of Pecha Kucha<sup>6</sup> presentations. Thus thanks to the well-devised thematic structure of the Camp, they get some experience of the presentation technique to be used at the Gala, where they are to present their projects worked out in their own thematic group in a similar form. The presentations of the first and the last day provide the Camp something of a framework structure.



Group presentation at the MY Camp Gala.

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<sup>6</sup> The owner of the Pecha Kucha Night concept is Tokyo-based Klein Dytham Architecture. In 2003, Astrid Klein and Mark Dytham came up with the idea of an open forum where young designers could meet and present themselves to the large public. Each presenter could show 20 images, for 20-20 seconds each. That is, they had 6 minutes and 40 seconds before the next one took over. Such presentations are concise and dynamic; the interest of the audience does not waning, and more people have an opportunity to speak.

Besides the short presentations, the programme of the first evening is coloured by various sports activities. The obstacle course and other agility exercises are excellent team-building activities. There are also many excursion sites and lakes near the residential premises. It is possible to use the sauna and to take a swim in the cold water of Lake Sääksjärvi.

On Day 2, the participants of the Camp go to an excursion. It is important that this is scheduled for the beginning of the Camp, since later on students spend a significant part of their time working in groups of six. The excursion is ideal for informal discussions and for getting to know the others. During the excursion, campers visit the sights of the capital and they can admire the Helsinki archipelago on a boat course. (In the Camp of 2010, the visit to the capital was scheduled for the last day. In 2011, the campers visited Heureka Centre<sup>7</sup> on the day after the Gala.)

Project work (see Point 2.3) starts on the evening of Day 2, when campers assigned to the same group sketch their ideas concerning their joint work. The organisers ensure that students have several working hours a day to work on their project.

On Day 3, campers visit the Kumpula Campus of Helsinki University<sup>8</sup>. After a collective greeting session, the researcher students can take part in different programmes depending on their field of interest and related to their field of research. The entire university infrastructure is at their service, to assure the success of the programme. The student groups working on different topics during the Camp are co-ordinated by two adult leaders each: one is with the group at all times, assists with their work and helps them solve everyday issues, and the other is a professor or a recognised senior researcher of the topic who provides primarily professional support.

In the chemistry and physics laboratories, the student participants of the Camp could model a hydrogen-driven car. Of course, during the experiments, they were instructed by university teachers. On the following day, they visit various companies<sup>9</sup> and research centres. The managers and staff members of the co-operating companies are glad to take part in the

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<sup>7</sup> Heureka is an interactive scientific museum offering lectures and experiments to make the laws of physics understandable for the youth and to present the related scientific and technological achievements.

<sup>8</sup> Kumpula Campus is a modern university establishment meeting every requirement of the 21<sup>st</sup> century. The buildings host a natural sciences faculty with an enormous library and laboratories suitable for advanced research work.

<sup>9</sup> The co-operating companies are the following: Nokia, Vaisala, Kemira, Fortum, UPM, ST1.



enrichment of the talented youth and they are confident that the future generations will be successful.

The programme of the Camp changes every year, but the organisers have tried to preserve the most popular components of the previous three camps.

## **2.2. Corporate contribution**

In recent years, corporate contribution, volunteering in education as a form of social responsibility, has become increasingly popular. Moreover, a company taking part in such activity appears in the local community and in the longer term in society overall with a positive message and this enhances its reputation.

It is not exceptional for companies to take an active part in educational programmes in Finland. Under the Mathematics Programme of Päivölä School<sup>10</sup> located near Valkeokoski, for example, students can acquire work experience at the Toijaa centre of Nokia already during their school years. This takes place as part of the curriculum, in 10-12 hours a week (Hornyák, 2010).

Nokia plays a significant role also in the Millennium Youth Camp. In 2011, MY Campers in the applied mathematics group visited the company's centre in Espoo. The size and architecture of the centre was a remarkable experience for the students in itself. At the centre, the researchers offered the Camp participants an insight into the secrets of the latest researches.

The workgroup focusing on the topic of climate change visited Vaisala company. The company which manufactures meteorological measuring devices and equipment is concerned also by giving an answer to global problems. It is a global company delivering its products to every part of the world which applies advanced technology to manufacture equipment which provide an increasingly accurate picture of the weather factors threatening the values of the population and of production. The research staff of the company do their utmost to make the visits more and more interesting on each occasion.<sup>11</sup>

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<sup>10</sup> This programme was shown in detail in Volume I of this publication.

<sup>11</sup> In 2011, during the visit to Vaisala, the students of the camp were shown a space probe developed by the researchers of the company, which could be attached to a meteorological balloon to measure the carbon-dioxide content, temperature and pressure of the atmosphere.



The water project workgroup's visit to Kemira

As for the answers to the global problems maturing at the level of the companies, the campers could hear about them also at Kemira specialised on water chemistry. Kemira's experts think that the supply of clear drinking water will be one of the most serious global problems of the future. They are preparing for that by selling the chemical substances they produce to alleviate the situation together with the relevant services, that is, they want to be present throughout the process, from manufacturing to utilisation. The visit to this company had a great impact on the campers working on the water project.

### **2.3. Enrichment**

The term "enrichment" is generally used to indicate a form of the differentiated education of the talented youth, but it often refers also to so-called supplementary curricula, irrespective of the level of competencies of the targeted student population. In Renzulli's (1977) triad model, the objective of the first type of enrichment is to expose the talented youth to exploration activities in various fields; the second type concerns collective development activities to teach methods of evaluation and thinking, and the third type is about studying real-life problems and solving real tasks individually or in small groups. Whereas the first two types may be adequate for all students, the third one consists of such advanced-level tasks as will be performed by the talented youth on a basis chosen by themselves. This type of task-solving activity stimulates the students to collect fresh data, to apply research methods matching the range of knowledge concerned and to share the output of their work with a suitable audience.

Project work in MY Camp realises this third type of enrichment.

## **2.4. Project work**

Project work is the most decisive component of the Camp. Project development concerns the sketching and solution of the problem, but also the exploration of as many correspondences related to it as possible. One of the great advantages of project work in the Camp is that those who work on a joint project produce individual products by individual research. It is key for the future of the young researchers to master the competencies which they can learn through project work and put to use later on also at companies, as members of research groups. Group activity develops the skills of task division and of paying attention to one another. It teaches patience and respect for the other.

Project work starts with a joint consultation, a brainstorming session, in groups of 6. Participants can express their opinions, and no one is subject to negative criticism. The project in its final form contains the work of every participant.

### **2.4.1. Origin of the project method and its significance in the development of talented students**

Given the multicultural background of the camp, it is worth taking a glance at the origins of project work and its objectives at that time.

The term “project” was first used in public education in a pedagogical context in the US in 1990, in connection with vocational education. It was thought that the term was suitable to cover the entire process whereby the youth specify their own examination piece and the algorithm to realise it on their own, and after making it themselves, they present it for evaluation (Nádasi, 2003).

Later on John Dewey and William Heard Kilpatrick extended the meaning of the term to education beyond vocational education, also in the US. These outstanding reform teachers aspired to use this approach to secure the role of the genuine, personal, learning experience, of real activity as a counterpoint to education based on reception, on the distilled lexical knowledge of the subjects, alien to the children. They deemed it essential to make students responsible for the realisation of their projects as a means of education to democracy (Nádasi, 2003).

For a long time, project-based education has not played an important part in the practice of European public education.<sup>12</sup> To date, however, it is quite a widespread pedagogical method, albeit it is still disregarded at many institutions. For the talented students arriving to the Finnish talent camp from 22 different cultures, on the other hand, it is clearly the most effective and the most enjoyable method of development.

The project method is a key tool of the education of highly gifted children in several respects. The children concerned like to act freely and independently, they like genuine tasks and challenge. The projects are so complex that they embrace a wide array of implementation skills and hence they provide an opportunity for the manifestation of many kinds of talent (Gyarmathy, 2007).

#### **2.4.2. Potential project work topics**

During project work, the participants of the Camp are divided into six groups depending on their sphere of interest. Orientation towards a given subject matter is decided upon already during the selection process, so the participants have time to prepare for it, and they have sufficient advance knowledge of the field. This is important inter alia because each of the topics being offered concerns a complex research area demanding comprehensive knowledge/skills:

- *Climate change*

The first of the potential topics is climate change, an urgent scientific issue and also a global social and political challenge.

- *Renewable natural resources and energy*

One of the most complex tasks for the students working in the Camp is to study the renewable sources of energy. The significance of the renewable sources of energy lies in that their use correlates with the guidelines of sustainable development, that is, their use does not deteriorate the environment, but they do not restrain the development options of mankind either. Contrary to the use of e.g. fossil fuels, they have no cumulative negative effects such as the glass-house effect, air pollution or water pollution.

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<sup>12</sup> Practice was predominated by the Herbartian pedagogy, which was content-centred and hence gave no room for student autonomy or the lack of external regulations of content and process concurrent with project-based teaching (Nádasi, 2003).

- *Water*

The water workgroup is to examine the options of economical water utilisation: in our fast-developing world, the demand for water is on the rise and hence it is imperative to protect it.

- *Information and communication technology and digitisation*

The ICT group focuses on the internet, on mobility and on computer systems. They are to seek options that would make communication more efficient, simpler and more enjoyable.

- *Applied mathematics*

Many areas of mathematics, such as linear algebra, probability calculation, mathematical analysis play a significant part in engineering work. Those in the applied mathematics group can visit the centre of Nokia during their week at the Camp.

Students divide the above general topics into several more specific ones to make joint work even more efficient. At the end of the project, the workgroup members make a presentation and illustrations for it.

### **2.4.3. Illustration and presentation of the projects**

It may be justified for several reasons to make a graphical representation of the internal correspondences encountered in the project. There is no good or bad solution; the essential thing is that it should provide a suitable basis for project work, it should guide thinking and the activity. Consequently, several visualisations can be made of the same topic as thinking progresses (Nádasi, 2001). The outputs of project work, the forms of the presentation can also be of many kinds<sup>13</sup>. Students are inspired by thinking about them as an objective of their work. During project work, MY Campers represent the correspondences related to the topic on a poster and then they make a presentation material

The end-products are presented at the MY Camp Gala. The group members present the results of their group at a ceremony, and they receive a diploma from the camp leaders. This

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<sup>13</sup> Here are some of the possible target results: posters, statistics, photos, films, verbal or oral reports, „book”, vocabulary, model, blueprint, expo.

certificate has a high value: the students who take part in camp work are admitted to certain courses of Helsinki University without an entry exam.

### **3. Mentors, facilitators**

Mentoring is an efficient method of education and teaching, applied by many renown scientists and thinkers from the Greek philosophers through Erasmus to Rousseau to raise great personalities similar to them. The great schools of medieval England, such as Cambridge and Oxford, institutionalised mentorship (Gyarmathy, 2007).

Anyone can be the mentor of a talented child whose field of interest and style corresponds to that of the latter. In a musical camp, the proximity of the artists who teach there is the most important for the students. A camp concert, a course can have a great impact on the future artists, and acquaintances dating from a camp and the instructions of a mentor can play an outstanding role also in career orientation. Similarly to the artistic camps, for students interested in the sciences, it is a decisive experience to meet a famous person or to find a mentor at the camp with whom they can work also later on and whose assistance they can count on.

#### **3.1. Mentors and idols in the Camp**

It is an essential component of the Millennium Youth Camp programme that students meet scientists and researchers, i.e. potential idols. Consequently, the apexes of the one-week programmes are the events offering such opportunities. Besides the two permanent facilitators, the campers meet renown scientists and researchers at the lectures, at professional discussions and at the scientific price award ceremonies.

One of the most interesting events of the camp of 2010 was the Millennium Technology Prize <sup>14</sup> Award Ceremony. Tim Berners-Lee, the inventor of the World Wide Web was the first to receive the biggest technology award of the world, the Millennium Technology Grand Prize. In 2010, the main price was awarded to Michael Gratzel for the

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<sup>14</sup> The Millennium Technology Prize is the biggest technological recognition globally. In the summer of 2012, the prize awarded every other year was awarded for the fifth time for a technological invention which improves the quality of human life and supports sustainable development to a significant extent. Candidates are nominated by scientific societies, universities, research institutes, companies and organisations, but the candidates cannot

“The best thing at the camp was that it provided an opportunity to build contacts with foreign campers and experts, and to meet Professor Michael Gratzel. The camp gave me contacts and opportunities to get several steps closer to my dream, i.e. to researching the topic I find most interesting in the world”.

Jarkko Etula

development of solar collectors, of dye-sensitised solar cells, driven by an electrochemical principle named after him. The students taking part in the Camp could follow the event live with the candidates and the Members of the Academy at the Finnish National Opera. On the day after the ceremony, they met the prize-winners personally and could ask them questions. In 2011, Professor Steven Furber, winner of the Millennium Technology Prize in 2010, was the honorary guest of the camp. The professor held a lecture and had consultations with the participants of the camp, and he gave them useful advice concerning their research work and future plans. In 2012, the students could meet researchers Linus Torvalds and Shinya Yamanaka who produced outstanding results in computer science and biology.

#### **4. Contacts with coevals; contact-building**

*“With the acceleration of technological development, it shall become natural for the scientists and researchers of the future to build up a network among themselves”*

*Ainomaija Haarla (Technology Academy Finland)*

Outstanding performance is most often backed by a most widespread personal contact network. To be among the most successful members of society, it is not enough to study with diligence; you must know how to build your personal contact network and how to find your way in the networks of other groups of people (Csermely, 2005). The Millennium Youth Camp helps the talented youth acquire new knowledge and, moreover, it provides excellent opportunities for contact-building. Most students consider contact-building the greatest advantage of the Camp, which warrants the conclusion that they are fully aware of the importance of social capital already in their secondary-school years, albeit they have much less opportunities to develop it in the period before their university studies.

According to Freeman (1993), it is often thought that intellectually talented children are not gifted socially, their sociability is weak, they have no friends and they like to be alone. However, this is not always true. The case is often that they like to be alone more than other children, and this is misinterpreted. The differentiated talent model of Gagne (2009), on the other hand, highlights the importance of contacts with coevals and of their effects. In his

opinion, realised talent (talent as opposed to gift) is the product of development through the interaction of various abilities and of interpersonal and environmental catalysts. Among the environmental catalysts, besides the coevals, he mentions the significance of mentors, of the diverse professional programmes and courses, and of the professional challenges. Thinking in terms of Gagne's talent model, the Camp provides essential components of the environmental catalysts needed for the realisation of giftedness.

The most important thing for talented children is to develop appropriate contacts with peers active in the same field of interest. A healthy competitive spirit is also necessary for outstanding performance. Several MY Campers had already had an opportunity to test their knowledge at international contests, at Olympic Games for Students. Former rivals may work on the same project. Thus the main goal is realised: the camp teaches the skills needed for dialogue and common thinking the young researchers who might one day find answers to the global problems of our days.

Hard professional work notwithstanding, the atmosphere at the Camp is very good indeed. As a result, students are amalgamated into a stable community in a few days' time. Campers can play music, sing or pursue sports activities during their leisure time. They offer each other the most diverse activities at the international evenings. In 2012, students got acquainted with Czech folk tales and took part in a rubber-boot throwing competition led by the Finnish students on that occasion. These evenings usually end with singing together and this helps break down the walls and bring the students closer to each other. A tradition was born in Finland in the fifties that has been adhered to by the students of the Camp: as in the Finnish schools, the group elects by secret voting the Smiley Boy and Girl of the "class". This symbolic recognition is due at the end of the camp to the most friendly, most honest and helpful students.

The goal is that students should preserve this enthusiasm also as young adults. If they feel personal responsibility for the problems of society, work done in the interest of the common goal will be fruitful. MY Campers experiencing the benefits of work in an international environment at the Millennium Youth Camp will return home richer by a life-long experience.

### **III. Summary**



Teenagers interested in science and technology can choose from a vast array of summer camping offers. There are intensive enrichment programmes for talented students organised around the same topics in several countries of Europe. The constituents and goals of the XLAB camp organised in Germany, the Summer School of Sciences in Croatia and the Millennium Youth Camp in Finland are similar.

Admission to MY Camp is preceded by a two-round selection process. Contrary to the practice of other camps, selection starts at the end of the previous year. The complete list of the names of the 30 participants is published in early March.

Project work done in groups of 6 by students coming from different cultures is a key element of the Finnish camp. Each of the five research topics concerns a global social problem to be answered by science. During project work, the end product, i.e. a formal presentation held at the MY Camp Gala, is given great emphasis. Campers experience many advantages of project work during their camp work. Project work develops the skills of labour division and of listening to one another; the students learn to work and do research in an international team.

The participation of mentors and of well-known and renown professionals of science and technology is of key importance. The workgroups have two leaders each, with whom they co-operate during the week and, in addition, they meet the winners of the Millennium Technology Prize and they can take part at the award ceremony held every two years. During the Camp, the participants are assisted also by experts of mammoth companies.

The Camp offers the youth many recreation opportunities, through which they can get acquainted with the Finnish culture and the cultural values and traditions of their peers coming from other countries. It is the declared objective of MY Camp to popularise the Finnish universities: the youth admitted to the camp can study at the Faculty of Natural Sciences of Helsinki University without having to pass an entrance exam. This is feasible because most Camp participants are committed and motivated students who had demonstrated their aptitude at international contests, and their project plan prepared as a condition for application was also excellent. Besides talent counselling and nurturing, the mentors provide also talent identification.

The students consider the opportunity for contact-building one of the main proceeds of the Camp. The objective is that young persons with similar interests and of the same age should develop a network among themselves; that they should get acquainted and like to work in an international medium, since the answers to the global problems can only be found in international co-operation, and young researchers will play a key role in that.

As for the possibility of the adaptation of the camp programme to the domestic (Hungarian) scenery: the relevant didactic and methodological conditions are available, but financing would require the more marked contribution of companies than is typical for talent programmes in Hungary in general. Although Hungary has no global company similar to Nokia, there would be alternatives in every field of research. However, inter-sectoral co-operation is a must if Hungarian schools are to achieve significant educational results in global comparison. The Finnish example highlights the outstanding importance of the generation of the coeval social capital of secondary-school students for career-orientation and future employment. It is inevitable and useful to build international networks as a means for establishing the conditions of finding adequate answers to global problems.

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