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Computer science in the Matura schools

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From MAV to MAR

In 1995 the MAV (admission order for Swiss Matura)got replaced by the MAR (admission regulation for Swiss Matura). The MAV was a unilateral federal regulation for the admission of Matura schools (private and cantonal schools). With the MAR also the cantons should be merged into the admission of the Swiss Matura through the Swiss Conference of Cantonal Ministers of Education (EDK). This extension created new participants, i.e. the cantons, with the creation of the regulation which brought in naturally own conceptions and desires. According to the spirit of the age one wanted to promote and strengthen inter- and multidisciplinarity. The result of it were these collecting subjects such as natural sciences. A tendency of it was also to deslag the regulation. E.g. the introduction course in computer science got cancelled.

In 1986 in the old MAV an article was embodied, which obliged schools to organize an introduction course in computer science. It had been created so that students could be introduced as efficiently as possible in the handling of the computer. The curriculum to this was published in the file 6 of the EDK. At the beginning of the nineties, when it was already recognizable that the computer would soon penetrate into all areas of life and consequently young people would have be in contact with the computer since the early childhood, there was said that the skills and the basic knowledge of computer science are already acquired on the secondary level I. The Matura School can get hold of this knowledge and skills and therefore an introduction course in computer science is not necessary anywhere. Computer science is therefore to be integrated in all subjects, because the knowledge acquired on the secondary level I would now be applied. A independent scientific position of its own was denied in computer science of the Matura School.

At this time the surroundings were not favorable for computer science in the Matura School. Computer science was equated with instruction in programming by most people and was often understood as a subsection of mathematics. In school computer science instruction was usually introduced by engaged pioneers of mathematics or natural sciences. There was only a small quantity of real specialists in computer science, because a lot of universities have produced graduates of computer science since the late 80's. A specialized didactique in computer science got established later.

By a large majority of people computer science in the sense of "computing" was assigned to mathematics. Consequently there it can be explained why computer science had a very difficult position in the Matura School. The restraint of the authorities cannot be excused, as again and again experts and associations (e.g. SVIA) kept on referring to the necessity of an independent instruction in computer science by specialized teachers.

After 10 years of the MAR

Today the schools have 10 years of experience with the MAR. The integration of computer science into other subjects has not worked satisfactorily, because the teachers are not trained enough for this task and because the specialized content of the other subjects have priority. In many cantons introduction courses in computer science are offered, but the offer isn't available in all cantons. Specialized computer science is not selectable as a maturity subject. In the MAR computer science does not exist. With the evaluation of the MAR (EVAMAR I) the deficiency has been revealed with the computer science offer.

Two years ago the canton Berne brought up at the SMK (Swiss commission for Matura examinations) to introduce the subject of "specialized computer science". Thereby it has failed enormously its target. Likewise such efforts were made by the canton Aargau. But they got struck back strongly however by the failure of Berne. Today often specialized computer science offers are integrated into "applications of mathematics". Elsewhere there is no such specialitiy.

There is really the call for a subject such as "specialized computer science" in the MAR. The VSG (Swiss Union of teachers in Matura schools) supported this requirement by means of a resolution of the delegates in November 2005. Likewise the requirement for a basic course in computer science in Matura schools on secondary level II is justified. This requirement is also supported by numerous specialists. In order to understand really the basic concepts for the user, a certain maturity is needed, which is not yet given at the age of the secundary level I. The introduction into computer science must take place on all school levels, according to the intellectual development of the students.

The future

The association SVIA pursues the following strategy: Now the project "the subject specialized computer science in the MAR" is to be finished successfully. The SMK (Swiss commission for Matura examinations) must be convinced that this subject is indispensable. When this project is finished, the focus is to be put on the basic course. At the same time the discussion must be launched over a basic subject as well as an emphasis subject in computer science. The basic course of approximately 1 hour per week throughout a year is undisputed by experts at the beginning of the teaching in Matura schools. Surely the basic course will fight against the well-known arguments. The discussion must be expanded however on a basic subject, which generally should be introduced on the secundary level I. That is a project, which aims far beyond the MAR. A lot of co-operation between the different school types is required. However computer science as cultural knowledge may not be missed in the formation of young people, it must be represented on all levels with the suitable intensity.

Before the start the projects mentioned must be discussed intensively in computer science circles, on the one hand concerning extent and on the other hand because of contents. Thereby the Computer science should deliver a closed picture if possible, because otherwise the danger exists that the different diverging opinions are out-played against each other. On the one hand in this connection the contact should be looked for on university level, on the other hand the different associations must be included. The new roof federation ICTswitzerland, of which the SVIA is member, can be surely won for support. As well as the necessary political reproduction can be developed. To convince the sceptics of people in the authorities will be very difficult. In addition these will be resistance from teachers, if the lesson cake must be divided again.

I hope that there will be sufficient support for these projects within the computer science scene. If all stand up together, it should be come a great success.