



Casualties and winners of the Bologna process in geoscience: Changes in the field practicals due to the transition from five-year MSc curriculum to BSc+MSc curricula – a case study from Hungary

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In the framework of the so-called Bologna process, the last four years have seen the transition from the five-year master (MSc) curriculum system to the bachelor (BSc) + master (MSc) system in the majority of Hungarian universities. The introduction of the previously unprecedented bachelor degree in most of the disciplines of natural sciences is intended to promote the mobility of students among the universities in national and in European level. The administrative steps and curriculum development efforts (partly financed by the resources of European Union and from governmental budget) have been grouped into several phases. The phases include the curriculum development, national accreditation of new bachelor specialisations (definition of taxative lists of degrees and specialisations), and accreditation of the individual universities for the nationwide accredited curricula. The National Board of Accreditation of Higher Education (MAB), consisting of university professors and academic specialists, has the control on the creation and introduction of curricula at all universities in Hungary.

The change is especially considerable in the field of geoscience: there were a number of specialisations (e.g., geology, geophysics, meteorology, astronomy) that had individual five-year curricula before; these do not exist anymore as bachelor degrees. Consequently, the new, integrated bachelor curricula had to be introduced in geoscience

that are typically completely restructured to fit into the 3+2 year (6+4 semester) system. To maintain the traditional specialisations therefore a number of blocks of specialised courses have been introduced and accredited *within* the framework of the bachelor curriculum. At Eötvös University for the BSc in geoscience, we have established a possibility to make a choice after the second semester among 7 blocks of such specialised courses: astronomy, cartography, geography, geology, geophysics, meteorology, and environmental sciences (the latter is a teacher's orientation). The master programs then follow this scheme making it possible to keep the previous subjects as restructured MSc curricula.

There is, however a special major problem in the concept of the bachelor program in geoscience. Since in geoscience the summer (field) practicals are of primary importance, the 3+2 year system means the loss of one summer practical after the sixth semester. The integration of the previously separated curricula in the bachelor level makes the problem even more difficult. The first summer practical (after the second semester) cannot be specialisation-specific, since the students did not have the option to make a choice yet among the blocks. To overcome this problem, we have introduced a three-phase system. In the second semester, there is an extensive practical subject named *Measurements and observations* that includes two phases: a general, rather theoretical part and a specialised measurement phase. In the general studies the students have to learn the general principles of measurements and observations, data handling, logging, etc. After having been examined in theory in the first half of the semester, they carry out typical astronomical, geological, geophysical, meteorological measurements in smaller groups in a rotational manner. During the group measurements the students need various skills. For some activity creativity is also requested, while in logging exercises they are tested if they are able to make observations, whether they can recognise small changes in the setting and if they are able to document their findings. In a small number of observations the students work alone, team work is not possible, while in other measurements the students may or have to co-operate.

In the third phase, there is an elective summer practical that focuses on one of the subjects (e.g., shallow geophysical measurements, basic geological mapping, geodetic measurements, etc.). The students are allowed to make their own choice in which measurement type they want to take part. This activity also facilitates the selection of the specialised block of courses in the next (3rd) semester.

Our present study focuses on the behaviour of students how they find this system, how they cope with the various requirements, and how they recognise their opportunities. Several student groups have been identified. Some have decided what to choose already in the first semester and were not influenced by these activities. Some stu-

dents have slightly changed their attitude by the actual results of the measurements. A smaller group visited more than one field practice (though only one choice was compulsory), and a small number of students waited until the very last moment to make their choice. After this selection procedure all student groups were polled how they found the information on the possible choices and what they found as the most influencing factor in their decision. Since this group of students is the first in the bachelor scheme, they also had information on the previous (five-year) system from older students. A number of participant reported they were unhappy with the bachelor status and would prefer the five-year curriculum, mainly because the older students or their parents influenced their opinion. They also have concerns about if they can manage to continue at master level. A smaller group (typically having good results and notes) considers themselves as “winner” of the system: they think that the bachelor/master system is advantageous for them because it offers more choices and it is also possible to combine the courses to a given extent that was previously more restricted. Among these motivated students there are some who are about to start their own student research projects partly as a result of their field activity. They are actively seeking other information sources, they are contacting the scientific staff of the departments and they attend special elective courses as well.

The studies are still on-going with the next students, and some amendments have already been made in the structure to take into account the preliminary results.

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