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CROSSING FRONTIERS IN TEACHERS TRAINING

European Project EU TRAIN within Comenius 2.1. Programme

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1 INTRODUCTION

It is well known that students' interest in science subjects decreased dramatically in whole Europe during the recent years. It has been documented that it's common for students to lose interest in and to develop negative attitudes to science subjects, resulting in declining enrolment in tertiary studies [1,2]. It is also an obvious fact that the teachers are the most important driving force in improving the quality of education. Many recent investigations have shown that ways of science (especially physics) teaching at schools are not optimal and need improvement [3-6]. In order to change this situation, the authors of this paper have decided to launch the EU TRAIN (European Training for Student Teachers in Science) project aimed at the elaboration of a common curriculum for science teachers training.

Training the teachers for the reflective teaching, seen as an ability to question own view as well as views presented by others, draw conclusions and adapt the way of thinking accordingly, should be an important part of the initial teacher training. In this context the teaching practice seems to be essential for successful preparation of the teacher's profession mainly because it is the field, where the above competency is developed during every day work and where the future teacher could gain the knowledge that comes from analysis and reflection on her/his real school work [7]. Thus, the one of the special objectives of our project is the study on the role and contents of the school practice in partner countries within the science teacher training curricula and organising of the student teachers' practice periods in the particular foreign countries.

2 COMPARISON OF THE SCIENCE TEACHER TRAINING CURRICULA

The first step in the process of elaboration of the common curriculum was the comparative analysis of curricula existing at the partner universities. On this base we identified the following common features significant for future implementation of the common curriculum in the project partner countries [8]:

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- a general structure the academic year for all universities consists of two semesters (winter and summer) of almost the same duration (15 to 16 weeks);
- the main forms of study programme are as follows: lecture with a final exam, laboratory, exercises, seminar, school practice (supervised by an university teacher or a school teacher), individual work of students or group of students (completing the following tasks: writing of the essays, preparation to the exercises, work in libraries, preparation of lessons, seminar papers and exams);
- training of future science teachers includes as the common parts of the general scientific studies on the main and second subjects and pedagogical training (including teaching practice);
- all the partner universities put an emphasis on pedagogical training and school teaching practice. Its contents in the hole curriculum is similar (Table 1).

Table 1 General pedagogical training and practice training content in the partners countries curricula.

Country	General pedagogical training as a percent of curriculum	Teaching practice as a percent of general pedagogical training
Finland	20 %	33 %
Bulgaria	22 %	39 %
Poland	28 %	32 %
Estonia	31 %	19 %

From the Table 1 we can see, that there are no major differences in the part of curriculum devoted to pedagogical training of the future science teachers. However, we observe some particular differences in teacher training and the teaching practice for each country connected with the duration of studies, organisation and duration of the teaching practice and the number of ECTS points given (Table 2). These differences are connected mainly with the different organisation of the studies and different requirements according to the qualifications of the future teachers in partner countries.

Table 2 The number of ECTS points achieved by future teachers in the partner universities for the teaching practice of different types and the duration of the hole practice.

Type of practice	Bulgaria (BSc, 2 subjects)	Estonia (MSc, 1 subject)	Finland (MSc, 2 subjects)	Poland (BSc, 2 subjects + MSc, 1 subject)
Basic training	6	0	7	3
Advanced training	6	0	8	4
Applied training	9	15	5	15
Total	21 (8 weeks + 60 school hours)	15 (10 weeks)	20 (11 weeks)	22 (11 weeks + 75 school hours)

It is necessary to define here the different types of the teaching practice which we have found as common in the partner institutions curricula:

- **Basic training** is the part of the practice focused mainly on the observing the school work, lessons given by the experienced teachers and participating in discussions with the tutor - school and/or university teacher and other future teachers,
- during the **Advanced training** future teacher is starting to prepare and give her/his own lessons under the supervision of the tutor,
- **Applied training** is more or less similar to the normal teacher's work - future teacher should observe, give and evaluate their own lessons and lessons of other teachers or future teachers.

Some of the differences in the teacher training curricula should be listed as potentially influencing the organisation of the practice periods in the foreign countries and implementation of the common curriculum:

- only MSc can be employed as science teacher in secondary school in Finland and Estonia however in Bulgaria and Poland it is possible for BSc to be a teacher (in particular in Poland BSc can be a teacher in the lower secondary school, but teaching in the upper secondary schools is possible only for MSc);
- the duration of BSc studies varies from 3 years in Estonia and Poland to 4 years in other countries. The duration of MSc studies is the same in every country (5 years),
- pedagogical training for students starts at the first years at university, together with the general studies in Poland and Bulgaria, while in Finland and Estonia is taking place only during the MSc studies;
- the number of credit points ECTS for teaching practice is different at each university.

3 FIRST MOBILITY ACTION OF STUDENT-TEACHERS TO BE

The second main step of the project was the first mobility action, during which the visits of students from the project countries in the partner universities were organised. The realisation of the mobility was possible thanks to the special European Commission grants for mobility actions. All the partner universities hosted foreign students without any charges and fees from their side.

The partner institutions have taken part in such type of student exchange, where the teacher training schools have been involved in the organisation and completing of foreign future teachers practice, for the first time. Among all involved countries only Finland is a good practice example of the close collaboration between teacher training schools and universities in the process of the future teachers training. In this country teacher training schools are the part of the universities and play the double role of the secondary schools and the institutions educating the future teachers of various subjects. The teachers of these schools are prepared to work also with student teachers to be and this work is the significant part of their professional tasks. In Bulgaria, Estonia and Poland training

of the future teachers is arranged by the universities in collaboration with the schools chosen by the university tutors, responsible for the student teachers training, and these ordinary schools are not belonging by law to the universities.

3.1 Realisation

Taking into account the findings from of the national teachers' training curricula comparison we have decided to implement foreign students into the student-teacher to be training groups in the hosting countries. This caused some reorganisation of the original practice schedules, but was possible. We have chosen English as the language of the mobility as most widely known in Europe now. We've decided however, that it will be not possible to teach in English in the hosting schools all the time. It could disturb the educational process too much. Thus, the lessons observed by foreign students should be given in the national languages. The language problems should be solved directly by teachers – mentors and future teachers from the hosting country (mentors should prepare the short English scenarios of the observed lessons and hosting institution student teachers to be should translate into English the most difficult to understand parts of the observed lessons). However, foreign students should give their lessons in English.

For the most effective organisation of the mobility we have established the national groups responsible for this task. The members of each group were: institutional coordinator responsible for the organisation of the mobility actions, survival teacher, responsible for the organisation of the three days survival and culture course in the hosting country, tutor – university teacher responsible for the future teachers training in the hosting institution and mentor – teacher of the teachers training school, responsible for the teachers to be practice.

The first mobility has taken place between January and May 2007. All the partner universities played double roles of sending and hosting institutions. Number of sent and hosted students varied from 2 to 4. The main objectives of the teaching practice were: acknowledgement in the teacher's work and working environment in the visiting country, comparison of the practical part of the training and finding out the best practices. During the first days in the foreign country the survival and culture course were organised to make students more familiar with the local environment. After the course foreign students had the possibility to observe lessons of different subjects in the hosting schools and to take part in the group discussions with the local future teachers, mentor and tutor. Third week was devoted mainly to the observation of the physics and chemistry lessons as well as preparation and giving own lessons by the foreign students.

3.2 Evaluation and conclusions

To evaluate the mobility action and collect the results and suggestions from the all interested groups of people (students involved and the national teams responsible for the organisation) the evaluation questionnaires were elaborated by the internal evaluation team of the project. Student teachers to be in receiving and hosting countries additionally prepared the reports with their suggestions, remarks and conclusions concerned with the organisation of the mobility and contents of the

teaching practice in the foreign schools. Although the students reports have been not uniformed yet, on the base of them and other collected documents we could formulate some general conclusions and recommendations for further mobility actions:

- sending a pair of students from a sending country to any receiving institution has been a good idea and is suggested as a rule in any further mobility action;
- it is recommended to organise a preliminary interview with the students – candidates for the participation in the mobility actions to evaluate their language skills and motivation to complete the teaching practice abroad;
- it is recommended to arrange a special information meeting for the students – participants of the mobility action, during which all the possible questions will be answered;
- it is necessary to send the schedule of the teaching practice to each hosing institution at least two weeks before the practice period;
- it is recommended to use the uniform documents for reporting and evaluating the mobility actions. It will make possible to gain the most scientifically valuable information;
- the receiving institutions should not be advanced science schools (schools with special selection of students in the field of science). The ordinary science teaching schools are better for execution of the unified science teachers training curriculum. Teaching at special schools needs a special training and very high qualification of teachers. However the schools are suggested to be specialised in the field of languages (especially English);
- it is suggested, that any future teacher should give at least one lesson during the mobility period. It is better to do that at the end of practice, when the foreign students are more familiar with the local circumstances;
- the maximum requirement for a student teacher to be should be teaching a certain theme in a certain class in the amount of 2 – 4, but not more than 5 lessons. This enables a student to concentrate himself on the real teaching abroad, taking into account all the local problems and differences;
- the survival course should start by sightseeing and excursions from the very beginning of the mobility period. Language lessons should start in 2 – 3 days in order to raise the interest towards the local language and familiarize with the sound of local language;
- for the future mobility actions is suggested to extend the teaching practice period abroad to 4 or 5 weeks. It will allow the foreign students to get more familiar with the local circumstances and to focus much more on the teaching abroad.

4 FUTURE OF THE PROJECT

During the last - third year of the project we are planning to organise the second mobility action using our earlier experience. We will also elaborate and publish a book with the common curriculum for the future science teachers with the teaching

practice abroad as an important part. We are planning to send the recommendations and list of good practice examples connected with teacher training to the national educational boards as well.

We have constructed the web page for disseminate the information concerned with all the project activities: http://www.helsinki.fi/luma/eutrain/

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