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Some comments about pre-service teacher education programs and stabilization of the Bachelor/Master Bologna structure in Italy

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a) *University Physics Degree*

The Bologna structure Bachelor/Master (or colloquially 3 + 2) has been implemented in Italian Universities since academic year 2001-02 in force of a national bill of law. The Italian public education system is centralised, all compulsory parts of curricula and syllabuses being decided by Ministry of Instruction and Ministry of University.

Before the Bologna transition the legal duration of the Physics Degree (Laurea) was 4 years; the average actual one being (5.5 – 6) years. A long, not easy process has been needed to re-design the courses contents to have them fit into the (3 + 2) schema. In successful cases the transition has been exploited to try solving solution for old, common, well known problems (e. g. a semester structure to address the heavy annual courses). In some cases the “squeezing” of a 4 years set of syllabuses into a Bachelor program has not been completely avoided. In Naples the modularization has been interpreted as module = course (some ECUs). We started the (3 + 2) schema in a. y. 2001-02 and a special effort has been put on helping the students enrolled in the previous 4 years curriculum to obtain their Degree or to transfer to the Bachelor program.

Soon after the first cycle of 3 years has been completed the Master program has been implemented in Naples (a. y 2004-05). A vast majority of the students with Bachelor Degree (in Italy named Laurea Triennale) enrolled into the Master (Laurea Specialistica o Magistrale).

In the global perception of many students and professors the Bachelor was “not enough” to become a “good physicist” as meant by the previous Laurea.

At the same time not many positions tailored to a Bachelor Degree were on the job market. The main positive and negative aspects of the Bologna transition have been, at least in the Naples case, more capability to follow a semester structure but, if students have some delay, it's very difficult for them to recover, - difficult to stabilize 3+2 because of continues changes imposed by law.

While it was time for an accurate analysis of the Bologna transition, in 2006 a new bill of law has imposed to modify the fine structure of the 3 + 2 schema (reduction of maximum number of tests per year, increase of ECUs related to basic courses, etc.).

b) *Pre-service Physics Teacher Education*

In force of a national bill of law, in the a.y. 1999, a post university program/cycle of 2 years, about 1500 hours of attendance, has been implemented in order to get a degree enabling to enter the list of secondary school teachers and possibly to be appointed as a state employee.

Each of the 20 Italian Regions had to have such a SSIS (Scuola Specializzazione per l’Insegnamento Secondario) organised and run by the Universities present in the Region. The SSIS contents have covered both pedagogical and disciplinary subjects, together with a final period of work on the field, supervised by experienced school teachers.

The cycle 2008-09 has never started since the SSIS have been abolished by law and substituted by a specific Master program aimed at pre-service teacher education. Up to now this Master has not been defined in details and there is a de-facto lack of a substitute of former SSIS.

For both cases of University Physics Degree and pre-service Physics Teacher Education changes imposed by law have weakened the opportunity, at a time when it was appropriate, to analyse the experience done in order to optimise the adopted schema.