A COMPARATIVE ANALYSIS ON USING SEVERAL VIRTUAL INSTRUMENTATION SOFTWARE IN EDUCATION

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Abstract: Using Virtual Experiments become one of the main methods for Science teaching in actual Education. Their power on creating simulation-based learning environments is well-known and many teachers have already adopted the virtual experiments to be used in their classrooms. The great extension of the Virtual experiments determined 9 institutions to propose a Socrates-Comenius 2.1. European project called VccoSse - Virtual Community Collaborating Space for Science Education project (code: 128989-CP-1-2006-1-RO-COMENIUS-C21) - http://www.vccsse.asi.valahia.ro - coordinated by Valahia University of Targoviste, Romania which has as main objective to adapt, develop, test, implement and disseminate training modules, teaching methodologies and pedagogical strategies based on the use of Virtual Instruments, with the view to their implementation in the classrooms. In the first year of the project, three software products were chosen for developing the process of training: Cabri Geometry II, LabVIEW and Crocodile Clips. This paper presents the results of a comparative analysis, made by the tutors who trained the in-service teachers on using the mentioned software products.

1. The VccoSse Project
In the frame of the VccoSse project, the partnership prepared and developed specific materials for training on using Virtual Instrumentation in Science Education. The training materials were designed to in-service teachers from primary and secondary schools involved in Sciences subjects in the partners’ countries. As a decision of the project staff, the training materials presented three Virtual Instrumentation environments (LabView, Crocodile Clips and Cabri Geometry) and the participants were asked to select one of the software environments for understanding its main functions and creating at least one learning object that has to include a virtual application.

Strengths
Active learning*
Concept/content teacher**

Weaknesses
Collaboration
Promoting pupils’ reflection
Providing appropriate feedback
Designing various activities
Concept/content teacher

2. METHOD
After the end of the Virtual Instrumentation in Science Education course development and its first edition, the chosen software environments were evaluated, taking into consideration the following ten criteria. The whole analysis was made based on a questionnaire with 10 questions related to the criteria mentioned above. The questionnaire was filled by the course tutors and covered the partners’ institutions which participated in the project. 31 tutors, with technical and pedagogical background, filled in the questionnaire. The tutors have been asked to choose one of the five answers: Not good, Weak, Middle, Good, Very good for all the criteria. The answers were collected and processed with the view to evaluate the Virtual Environments software and to take decisions regarding eventual needed modifications for the second edition of the course.

3. RESULTS
Assuming the percentage as a ratio of the Very Good answers (over 50% of them - for a given criteria), the strengths of the respective software can be stated. On the other hand, the ratio of the weaknesses was evaluated as more than 25% of the negative answers (Middle, Weak, Not good) for a given criteria. Having in view those remarks, concluded information tables (strengths / weaknesses) can be expressed.

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CONCLUSION
The results of the comparative study do not reflect the real weaknesses and strengths of the software presented above. The results are reflecting only the tutors and local coordinators perception on these software features and their applicability in the frame of the VccoSse project. The study planned after the second edition of the teacher training course will provide a more real image on these environments due to the experience gained by the tutors in the previous editions.

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