

Learning with ATLAS@CERN

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Abstract. *The Learning with ATLAS@CERN LLP project aimed to demonstrate an innovative pedagogical approach which involves students, teachers and the wider public in extended episodes of playful science learning. Learning with ATLAS@CERN basic philosophy is that the learning of science is a process of creating knowledge by learners. Based on the effective use of ICT tools (virtual environments, visualization technologies, 2D and 3D animations of aesthetic quality, simulation interactive games) the project aimed to offer a “feel and interact” user experience, allowing for exploratory learning “anytime, anywhere”.*

The project’s main objectives were: To develop a pedagogical framework that attempted to blend informal and formal learning and to situate learning in real- world contexts. To develop advanced pedagogical scenarios that are shaped around a mission guided by a general scientific question. To develop and evaluate a web based environment, the Learning with ATLAS@CERN Education and Outreach portal, which facilitates the implementation of the pedagogical scenarios. To pilot and to demonstrate the Learning with ATLAS@CERN approach in schools, universities and science centers in Greece, Finland, Sweden, Austria, UK and at CERN. To create virtual learning communities of educators, learners and researchers and involve them in extended episodes of playful learning. To perform an extended validation study of the Learning with ATLAS@CERN approach. To design and implement a systematic dissemination and exploitation strategy that contributes to the effective communication of the project’s results and outcomes.

In this framework the consortium has developed several interactive event analysis packages with which the students or the teachers can have a pictorial visualization of the reconstructed ATLAS events and at the same time “study” or as we say “analyse” them. The level of analysis differs according to the packages and the target groups. The very basic functions are: isolate

tracks, identify particles, measure their momenta and combine several particles together to investigate if they are decay products of other short lived particles. The events themselves can be randomly chosen or selected from a filtered sample of pre-specified events of interest. One of these packages-stored in the toolbox of the Learning with ATLAS@CERN portal-the HYPATIA one, will be demonstrated on line.