

Associating Sports Activities with Scientific Enquiry and Experimentation

Angelos Lazoudis
Ellinogermaniki Agogi
Dim.Panagea Str.
15351 Pallini, Greece
angelos@ea.gr

Abstract. *The incorporation of ICTs in education & training systems is becoming more & more important, allowing us to develop new approaches to learning, life and work. Furthermore, despite the increasing use of ICTs, it is strongly believed that our educational system has to shift from the traditional paradigm of teacher-directed learning to learner-centered curricula that promote the development of lifelong learners who can think critically, solve problems, be creative & collaborate at work.*

The Kicking Life into Classroom (KLiC) project by taking into account these aspects proposes an inquiry-based approach of science teaching pedagogy that bridges the gap between formal & informal education and brings science & scientific objects closer to the learners by using wearable intelligent sensors that associate every day and sports activities with scientific inquiry and experimentation.

KLiC aspires to teach science through the use of advanced technological applications by transforming the classroom to an experimental laboratory for all. The learners perform experiments with their own data. In this way their activities are transformed to scientific experiments and their classroom or sports ground is transformed into a scientific laboratory. Such activities are viewed by the young & adult learners as a craft that rewards dedication and precision but simultaneously encourages a spirit of creativity, exuberance, humour, stylishness and personal expression.

In order to do so the KLiC project uses an innovative sensor data collection tool, namely the InLOT system (www.inlot.eu) that consists of the following modules:

a) Sensvest - a vest, equipped with various sensors, designed to carry components that measure and transmit physiological data to the base station

b) Leg and arm accelerometers - small devices attached to the leg and/or arm that enable the 3-D measurement of the acceleration for the leg and/or arm

c) Ball accelerometer - a ball that has embedded an accelerometer measuring three dimensions and a communication unit that enables the transmission of data packets to the base.

d) Base Station - responsible for the collection of all transmitted data

e) User Interface Software - user friendly interface, designed with a pedagogical frame of mind that enables the process of data and actions such as plotting data on a graph or creating a mathematical model to fit the data.

In the framework of KLiC the use of the InLOT application is promoted to a wide target audience, namely to science teachers, university educators & students, young & adult (amateur) athletes through the implementation of a set of learning scenarios tailored to the needs of the diverse groups of learners.

The main outcome of the KLiC project is an inquiry-based structured set of guidelines on how learners can experience their everyday and sports activities in the context of science experimentation with the InLOT system enriched by a series of learning scenarios.