Collecting Data on Field Trips – RAFT Approach

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Abstract
The ability to relate abstract knowledge to real-world experiences is indispensable in the modern society. Therefore the construction of knowledge from real-world contexts is a major issue of education. This issue is not supported by the current learning management systems. In the RAFT project we develop a system to support remote accessible field trips. One of its applications, the mobile collector, facilitates constructivistic learning processes in real-world contexts.

1: Introduction

In the WINDS project we have developed the ALE learning management system that integrates the functionality of an e-Learning system with adaptive educational hypermedia on the Web [1]. Our plan is to further enhance the ALE system in the new RAFT project to enable also mobile learning.

The RAFT project will support high school students in active, cooperative and sustainable learning combining classroom and on-site research. The main scientific and technological objectives of the RAFT project are to demonstrate the educational benefits and technical feasibility of remote field trips of high school students, to establish extensions on current learning material standards and exchange formats for contextualisation of learning material. This is combined with the embedding of learning and teaching activities in an authentic real world context with real time video conferencing and audio communication to promote new forms of contextualised learner collaboration.

2: Mobile Collector and Viewer

One scenario that we want to support in the RAFT project is the following. A group of learners goes to a field trip, the rest of the class or even students from remote classes can participate via the Internet. The communication channel between both sites enables the learners in the school to ask questions, influence the behaviour of their peers in the field, or help them providing information they request.

As aler part of a course the teacher can prepare a field trip that consists of several modules called topics. Each topic includes several tasks for the learners in the field. For every task a learner (or a group of learners) creates one (or more) collection(s) where photos can be stored.

The photos can be annotated directly in the field. To make the annotation process as simple as possible the learners just choose appropriate concepts (keywords) from a list predefined by the teacher. Additionally they can create audio annotations for the collected photos. All the users (teachers and learners) can easily find a collection of a particular learner (or group of learners) for a certain task as well as all the photos associated with a chosen concept.

All the collected data is stored in the ALE repository and can be later elaborated by the learner as well as evaluated by the teacher. All these materials are searchable and can be used to produce flexible and reusable learning objects. In this way the learners can integrate those materials into their projects and the teachers into their courses.

In the field the learners can use various types of mobile devices for collecting data. The choice depends on the objective of the particular field trip as well as on the available equipment. For the devices that can browse the Web, render Java applets, are equipped with a camera and microphone we have developed and application that can be used as a mobile collector or a mobile viewer.

So the mobile collector and mobile viewer, that were described in this paper, open a new paradigm of learning: They enable the embedding of constructivistic learning processes in real-world contexts. This new approach will be the main focus of research and development in the RAFT project.

3: References