

Wiki as a tool to promote scientific inquiry in pupils from middle school

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IntTT Project

<http://www.helsinki.fi/integralteacher/index.html>

The project was designed for student teachers in Initial Teacher Training (ITT), aiming at helping them to learn strategies and methodologies that will support school students to develop their digital, communicative and subject competences of different school subjects.



Portuguese Activities

Activities have been designed in order to meet the following criteria:

1. Activities are designed to improve scientific knowledge and comprehension, as well as to enact communication and digital competencies;
2. Teachers have to use wikis during the implementation of the activities;
3. Students have to develop a variety actions;
4. Activities have to be flexible enough to allow teachers introducing modifications in order to meet their students' needs.



Portuguese Activities

The Portuguese Curriculum values students' active learning and so it recommends that students are provided with opportunities to:

- 1) Understand scientific concepts
- 2) Immerse within scientific inquiry and to develop the ability to think and act in ways associated with inquiry.

(Galvão et al., 2002)



Portuguese Activities

Eight activities were conceptualized for the 8th and 9th grade students

Topics concerned:

Chemical Reactions



Electricity



Portuguese CD





Teaching with interactive web technologies

Introduction

The resources presented here are designed to help teachers learn to use interactive web technologies in education. They are mainly intended for teachers in pre-service training (or Initial Teacher Training) but are also useful for the professional development of practising teachers and for providers of courses for professional development.

The technologies concerned include wikis, blogs, e-portfolios, video conferencing and virtual learning environments (VLE). The nature of these technologies is that they not only provide for the dissemination of information, but also facilitate the sharing of responses and contributions of many users of the systems involved.

In education these technologies may be used to develop digital, communication and subject competences in a variety of contexts. They can be applied both in teacher training programmes and in subject teaching across the whole school curriculum. The resources developed by the intTT Project provide examples of activities which integrate the development of these competences to their mutual benefit. In addition, the pedagogical discussion examines successful teaching strategies and facilitates reflection on the rationale for the use of the technologies.

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E-Portfolios

An e-portfolio is a type of learning record that provides evidence of achievement.



Forums, Blogs and Groups

These provide various styles of online discussion site where people can post messages and hold conversations.



Wikis

A wiki is an online system that allows one or more people to build up a corpus of knowledge in a set of interlinked web pages.



Video Conferencing

A video-conference involves a set of interactive telecommunication technologies.



Virtual Learning Environments

A VLE provides a collection of tools which may be employed for supporting learning, and may subsume several of the interactive technologies featured above.

Didactic Suggestions

Choose the type of technology you wish to investigate.



Competences for Lifelong Learning

A commonly recognised aim of education is to facilitate the development of a person's knowledge, skills and attitudes in a variety of domains of human experience; personal, social, intellectual and economic. The term 'competence' is used to describe a combination of these attributes such that the individual may succeed in meeting the demands in a given domain.

The European Commission has defined eight *Key Competences* as essential developmental components of its Lifelong Learning Programme (LLP):

- communication in the mother tongue
- communication in foreign languages
- mathematical competence and basic competences in science and technology
- digital competence
- learning to learn
- social and civic competences
- sense of initiative and entrepreneurship
- cultural awareness and expression

The intTT Project addresses the development of two types of competence:

Communicative language competence (CC)

Communicative competence has the following components:

- **Linguistic competence** is concerned with knowledge of the language itself, i.e. knowledge of, and ability to use spelling, pronunciation, vocabulary, word formation, morphology, syntax, stylistics, semantics.
- **Sociolinguistic competence** is concerned with the knowledge and skills required to deal with social dimension of language use. The matters treated are those specifically relating to language use: linguistic markers of social relations, politeness conventions, expressions of folk-wisdom, register differences between varieties of language used in different contexts, dialect and accent.
- **Pragmatic competence** is concerned with the learner's knowledge of the principles according to which messages are
 - organised, structured and arranged (= discourse competence);
 - used to perform communicative functions (= functional competence);
 - sequenced according to international and transactional schemata (= design competence).

Digital Competence (DC)

Competencies for Lifelong Learning

Aspects of learning

Skills required for use

Assessment and Evaluation



Module 1

Theme: Chemistry

Content: Acid Base

Digital Tool: Wiki

Curricular context

Acid and Bases are part of the Science Curriculum for 7th-9th graders.

The module includes four tasks that can be carried out, either in Chemistry classes or Project classes, in 5 to 6 periods of 90 minutes.

These tasks allow for studying questions/themes related to acid bases such as:

- What are acids and bases?
- How can we distinguish between an acid and a base?
- How can we prepare a neutral solution?
- How can we know more about scientist's work and life?

Module Overview

Goals

Methodology

Pupils activities

Assessment

Examples of use

Actividades Didácticas

- Acids and bases - Using a Wiki
- Electricidade - Utilizando Wikis

<http://lab-interativo.wikispaces.com/T1+-+Turismo+Cient%C3%ADfico>



Movie



Portuguese Activities

Scientific tourism: In the routes of Scientists

1. Imagine that you are a traveler guide and you want to organize a school trip related to the life of a well-known scientist. In order to plan that trip, you have to choose the best route that will give an idea about the footsteps of the scientist's work and life.

2. Several tasks.

- a. Clarifying the task.
- b. Recording all the information gathered, by creating and using a wiki.
- c. Organizing the information in order to prepare the script of the film.
- d. Presenting the movie to the class.
- e. Reflecting and discussing about the movies.
- f. Students are encouraged to use wiki, to present their opinion about the movies and then, after considering all opinions, to make a decision about which is the most interesting travel plan and to vote.



Ongoing study

These activities are being implemented by two teachers with their classes (8th and 9th grade)



What are the teachers' perspectives about the activities' implementation?

- Potentialities
- Difficulties
- Changes for improving activities

What are the students' perspectives about the activities' implementation?

What are the impact on students learning?



Thank you

